THE JOURNAL

OF

POLITICAL ECONOMY

JUNE—1902

FREIGHT-RATES ON ARGENTINE AND NORTH AMERICAN WHEAT.

THE source of the supply of foreign wheat consumed by western Europe has undergone a considerable change in the last decade. The development of the sixties of the nineteenth century was characterized by the first appearance of large masses of transoceanic wheat, coming from the United States, and that of the seventies and eighties by the advent of British India in the world's wheat market as a competitor of the United States and Russia, which, however, were steadily increasing in importance as exporters. The most striking feature of the nineties was the sudden and enormous influx of Argentine wheat and the decrease in the imports of Indian wheat, as a consequence of which the United States and Argentina are today the main factors in the transoceanic wheat supply of western Europe. The last few years have further shown that the South American Republic with which the United States and Russia have now to compete is a much more formidable adversary than was ever their Asiatic competitor. In no year did the exports from British India reach or even closely approach those from Russia or the United States, though the exports of wheat from Argentina were in 1899 and in

1900 about as large as those from Russia. And while up to the present time the exports from the United States have regularly exceeded and generally very considerably exceeded those from Argentina, there is more than a possibility that this state of affairs may be reversed. Among all the factors which will determine the course of this development perhaps the most important will be the cost of transportation of the wheat from the Argentine and the United States farms to western Europe. This fact is more or less recognized by all students of the question, but as yet there does not exist any satisfactory comparative study of the freight rates and commercial charges on Argentine and North American wheat. The aim of the following study is to discuss that part of the costs of transportation, which is involved in the transportation proper, and to compare the freight charges on wheat from the Argentine farm and from that in the United States to the local railway station, from there to the ocean and thence to the European market. But in order better to appreciate the amount of traffic involved it will be well perhaps first to consider the total output and the exports of wheat for both countries.

The share which the Argentine Republic had in the world's wheat production in the last decade may be seen from the following table which gives for the last two quinquennial periods the average yearly crop of all the countries having an average annual output of more than fifty million bushels.

With 2.27 per cent., or one forty-fourth of the world's wheat production, Argentina kept in the last decade the eleventh position among the wheat producing countries. In the quinquennial period 1891 to 1895 it occupied the twelfth rank, but went in the period 1896 to 1900 to the tenth, its wheat crop surpassing that of Roumania and Great Britain. In the average of the two years 1899 and 1900 it even occupied the eighth rank, being ahead of Asiatic Russia and Spain.

But a consideration of the production alone cannot give an adequate idea of the importance of Argentina in the world's wheat market. On account of its small population, which in fact

Countries.	Average Annual Crop in 1,000 Bushels.			Percentage.
	1891–95.[1]	1896–1900.[2]	1891–1900.	1891–1900.
United States	490,246	540,503	515,375	20.00
European Russia	369,632	370,043	369,838	14.35
France	299,563	324,737	312,150	12.12
British India	247,982	215,186	231,584	8.99
Hungary	148,017	127,701	137,859	5.35
Italy	126,427	125,432	125,930	4.89
Germany	107,846	132,126	119,986	4.66
Spain	87,144	98,942	93,043	3.61
Asiatic Russia	77,332	85,885	81,608	3.17
Great Britain	56,999	62,755	59,877	2.32
Argentina	53,000	63,939	58,469	2.27
Roumania	57,053	49, 25	53,389	2.07
Canada	51,406	53,913	52,660	2.04
All other countries	372,787	356,729	364,757	14.16
Total	2,545,434	2,607,616	2,576,525	100.00

is less numerous than that of any of the other twelve countries for which the production is given in the above table, it has a smaller need of wheat for home consumption than any of the other countries. According to the estimates made by the Argentine Department of Agriculture[3] for the years 1890–91 to 1898–9, only about 31 per cent. of the wheat crop was consumed within the country, and 9 per cent. was used for seed, while in the United States not more than one-third of the total crop of the same years was available for export.[4] As a consequence of this fact, the present export of wheat from Argentina, as indicated before, is only exceeded by that of the United States and Russia. In the eighties the combined exports of wheat and wheat flour from Argentina were still surpassed by those from Austria-Hungary, Roumania, Canada, and British India. But

[1] *Cf. Yearbook of the United States Department of Agriculture*, 1895, p. 530; 1897, pp. 717 f.; 1898. pp. 686 f.; 1899, pp. 776 f.

[2] *Cf. idem*, 1900, pp. 763 f. and *Annual Statistical Report of the New York Produce Exchange for the year 1900* (prepared by I. C. Brown), pp. 45 f. (From *Reports of the U. S. Dept. of Agriculture*, revised April, 1901).

[3] *Bóletin de Agricultura y Ganaderia*, Año I, Núm. 12, July 1, 1901, p. 41.

[4] *Cf. Yearbook of the United States Department of Agriculture*, 1900, p. 168, and *Statistical Abstract of the United States*, 1901, p. 333.

Years.	Wheat in 1,000 Bushels.			Wheat Flour in 1,000 Barrels.		
	United States.[1]	Russia.[2]	Argentina.[3]	United States.[1]	Russia.[2]	Argentina.[3]
1876	55,073	55,641	1	3,936	751	4
1877	40,326	52,139	7	3,344	460	2
1878	72,405	103,949	94	3,947	993	34
1879	122,354	83,801	94	5,630	684	17
1880	153,253	36,972	43	6,011	437	16
1881	150,565	49,511	6	7,946	450	14
1882	95,272	77,242	63	5,916	830	6
1883	106,386	84,985	2,232	9,206	268	54
1884	70,349	68,902	3,987	9,152	609	42
1885	84,654	93,326	2,884	10,648	863	84
1886	57,759	55,078	1,391	8,179	679	59
1887	101,972	81,402	8,740	11,518	727	57
1888	65,789	129,237	6,574	11,964	768	72
1889	46,414	114,682	838	9,375	697	38
1890	54,388	109,590	12,048	12,232	685	135
1891	55,132	106,150	14,534	11,344	689	79
1892	157,280	49,086	17,273	15,197	475	212
1893	117,121	94,029	37,043	16,620	588	427
1894	88,415	123,224	59,093	16,860	694	458
1895	76,103	142,678	37,121	15,269	772	607
1896	60,650	132,161	19,547	14,621	697	582
1897	79,562	128,385	3,742	14,570	694	466
1898	148,231	106,860	23,705	15,350	832	359
1899	139,433	64,466	62,904	18,486	707	669
1900	101,950	70,264	70,903	18,699	671	576
1901	132,061	83,293	33,227	18,651	679	807

[1] For the years 1876 to 1899 *cf. Bureau of Statistics, Monthly Summary of Commerce and Finance of the United States*, January, 1900, p. 2022; for 1900 and 1901, *idem*, June, 1901, pp. 3142 f. The figures refer to fiscal years, ending June 30, 1876, etc.

[2] The figures for wheat for the years 1876 to 1896 are calculated from *Étude statistique sur le commerce extérieur de la Russie, par B. Pokrowsky*, chef de la section de statistique du Départment des Douanes (St. Petersburg, 1900), p. 7; for flour, from *Das Getreide im Weltverkehr*, Vol. I, p. 196; all figures for 1897 to 1899 from *Statistical Abstract for the principal and other Foreign Countries*, 27th number, pp. 74 f.; for 1900 and 1901, from Imperial Russian Ministry of Finances, Division of Customs, *Foreign Trade over the European Frontier*, St. Petersburg, 1902 (Russian), p. 8. The figures for 1900 and 1901, include only the exports over the European frontier. The bushel of wheat is counted equal to 60 pounds, the barrel of flour equal to 196 pounds. All figures refer to calendar years.

[3] For 1876 to 1897 calculated from *Anuario de la Dirección general de estadística correspondiente al año 1897*, Tomo I, pp. 310 f.; for 1898, *ibid.*, 1898, Tomo I, pp. 322 f.; for 1899 *ibid.*, 1899, Tomo I, pp. 213, 215; for 1900, *ibid.*, 1900, Tomo I, pp. 217, 220; for 1901 from Dirección general de estadística de la nación. *El comercio exterior Argentino*, año 1901, Núm. 112, p. 96. The bushel of wheat is counted equal to 60 pounds, the barrel of flour equal to 196 pounds. The figures refer to calendar years.

the Argentine exports surpassed those of Canada since 1890, those of Austria-Hungary in every year since 1891, those of Roumania and British India generally since 1893.[1] The total amount of domestic wheat and wheat flour exported in the last quarter of a century from the three now leading countries in the world's wheat market will be seen from the table on opposite page.

The average annual export of domestic wheat in the last decade (1891 to 1900) from the United States and Russia amounted to 102,000,000 bushels each, and from Argentina to 35,000,000 bushels; the average annual export of domestic wheat flour from the United States to 15,700,000 barrels, from Russia to 682,000, from Argentina to 444,000. If one barrel of flour is considered equal to 4½ bushels of wheat, the combined exports of wheat and wheat flour from the United States amounted to about 173,000,000 bushels, from Russia to about 105,000,000, from Argentina to about 37,000,000 bushels.

The differences in the average price of the wheat imported from these three countries to England in the last five years will be seen from the following table:[2]

With the exception of the year 1898, when the price for Argentine wheat in the English market was higher than the average price for the wheat coming from the United States and Russia, the Argentine wheat cost in every year less than the average of all imported wheat, and less than that from the United States and Russia.

As almost all the export wheat of the United States and most of that grown in Argentina is hauled from the farms to the railroad, very little being carried directly to a shipping point, a short glance may first be taken at the development of the railways in both countries.

[1] *Cf.* for details, *Das Getreide im Weltverkehr.* Vom kk. Ackerbauministerium vorbereitete Materialień für die Enquête über den börsenmässigen Terminhandel mit landwirtschaftlichen Produkten, Vol. I, *Statistische Tabellen über Produktion. Handel, Consum. Preise, Frachtsätze und Kündigungen* (Vienna, 1900).

[2] Calculated from *Böletín de Agricultura y Ganadería, Año I, núm. 14* (August 1, 1901), p. 61.

Countries From Which Imported.	Average Price of the Bushel of Wheat[1] in Cents.				
	1896.	1897.	1898.	1899.	1900.
Argentina	76.3	89.0	114.1	83.1	85.7
United States (Atlantic Ports)	82.6	100.4	105.2	89.2	90.5
United States (Pacific Ports)	82.1	94.3	106.2	86.9	88.5
Russia (Northern Ports)	83.9	95.8	111.5	89.5	88.7
Russia (Southern Ports)	77.8	93.5	100.9	86.7	88.7
Average of all countries[2]	80.6	97.2	104.4	87.2	88.7

The first railway line in Argentina was opened on August 30, 1857, with a total length of 6 miles, nearly thirty years after the opening of the first road in the United States, which by 1857 had nearly 25,000 miles in operation. By the end of 1870, 455 miles were in operation in Argentina against 116 times that length in the United States, which had 52,922 miles. By the end of 1880, Argentina counted 1,563 miles, the United States 93,262, or 60 times as much; by the end of 1890, Argentina had 5,861 miles against 166,703, or 28 times as much, in the United States; by the end of 1900, Argentina had 10,292 miles, the United States 19 times as much, or exactly 194,321 miles.[3] The traffic and the density of the railways in recent years in Argentina and in the United States will be seen from the following table :

While the number of miles of railway compared with the population is not much larger in the United States than in

[1] The original figures are given in English currency for imperial quarters = 218 kg. = 8 bushels (of 60 pounds.) The basis for the transactions of wheat in Buenos Aires is the hectoliter, 1 hl. being supposed to weigh 77 kg. (1 bushel = 59.8 pounds). In fact, the Argentine wheat seems to be somewhat heavier than this, the average hectoliter of wheat in the province of Santa Fé having been found to weigh 78.11 kg. (1 bushel = 60.7 pounds), in the province of Entre Rios, 79.98 kg. (1 bushel = 62.2 pounds). *Cf. Ministère des Affaires Étrangères, Missions Commerciales; La République Argentine*, Charles Wiener (Paris, 1899), p. 53. In another place in his report, however (p. 344), Wiener gives for the weight of the hectoliter of wheat in Entre Rios as low an average as 68.04 kg.

[2] Including those not mentioned.

[3] Calculated for Argentina from *Ministério de Obras Públicas; Dirección de Vias de Comunicación, Estadística de los Ferrocarriles en Explotación*, Año 1900, p. 255; *cf.* for the United States, *Statistical Abstract of the United States*, 1901, p. 390.

Items.	Argentina.[1]			United States.[2]		
	1895.	1897.	1899.	1895–96.	1897–98.	1899–1900.
Passengers carried (in thousands)	14,753	16,411	18,015	511,773	501,067	576,865
Passengers carried 1 mile (in millions)	370	396	441	13,049	13,380	16,039
Passengers carried 1 mile per mile of line	42,180	43,703	43,852	71,705	72,462	83,295
Tons (2,000 lbs.) carried (in thousands)	10,638	19,900	13,029	765,891	879,006	1,101,680
Tons carried 1 mile (in millions)	950	1,141	1,421	95,328	114,078	141,599
Tons carried 1 mile per mile of line	108,215	114,913	141,369	523,832	617,810	735,366
Miles of railway per 100 square miles	0.79	0.82	0.92	6.15	6.28	6.51
Miles of railway per 10,000 inhabitants	21–22	21–22	21–22	25.8	25.4	25.4

Argentina, the number of passengers carried one mile per mile of line is from 70 to 90 per cent. higher in the United States than in the former country. The number of tons carried one mile per mile of line in the United States is even five times as large as in the South American republic. The density of the railways, measured by comparison of the length of mileage with the total area, is only one-seventh in Argentina of what it is in the United States. But while it is true that for Argentina, considered as a whole, the mileage of railways is exceedingly small in comparison with the area, this does not apply to the wheat districts. In fact, as will be seen from the following table, the four principal wheat producing provinces, with an area of 21.23

Provinces.	Mileage.[3]	Miles of Railway per 100 square miles.
Buenos Aires	3286	2.79
Santa Fé	2115	4.15
Córdoba	1222	3.13
Entre Rios	457	1.59
Total of four provinces.	7080	2.99
All others	3119	0.36

[1] Calculated from *Estadística de los Ferrocarriles*, 1895, p. 24; 1897, pp. 22 f.; 1899, pp. 24–27, 217.

[2] *Interstate Commerce Commission, Thirteenth Annual Report for the year ending June 30, 1900*, pp. 13, 67.

[3] Calculated from *Estadística de los Ferrocarriles*, 1899, p. 8.

per cent. of the total area of the republic,[1] contained in 1899 69.41 per cent. of the total railway mileage.

In the central wheat region of the province of Santa Fé, which contains about one-half of the wheat acreage of the whole country, the number of miles of railway per 100 square miles of area was as high as eight.[2]

The number of miles of lines per 100 square miles of territory in the United States on June 30, 1900, was 6.51. With regard to the principal wheat producing states the following classes may be formed: Oregon (1.82), Oklahoma (2.13), California (3.69), South Dakota (3.71), Texas (3.77), North Dakota (3.89), Washington (4.36), Colorado (4.43); Nebraska (7.40), Minnesota (8.77), Virginia (9.42), Missouri (10.00), Kansas (10.67), Wisconsin (11.99); Maryland (13.96), Michigan (14.27), Iowa (16.56), Indiana (18.02), Illinois (19.65).[3]

The density of the railways in the principal wheat producing provinces of Argentina is then only as high as that of the western wheat states of the union, while in the central wheat district of the South American republic it is as intense as in some of the middle states.

The density of the railways, however, is only one factor determining the distance which the farmer has to haul his wheat by animal power. A second factor is the density of stations, where the grain is loaded on trains, or the distance of the elevators from each other, in case it is first stored. The total length of the railway mileage in Argentina at the end of the year 1899 was 10,199 miles; the total number of stations was 1028;[4] the average number of miles per station was then nearly 10 miles. The maximum distance between two stations in Argentina was 43½ miles.[5] Thirteen of the twenty-four roads in Argentina in 1899 carried each more than 30,000 net tons of grain (wheat,

[1] *Cf.* this JOURNAL, March, 1902, p. 268.

[2] *Cf.* KARL KAERGER, *Landwirtschaft und Kolonisation im Spanischen Amerika* (Leipzig, 1901), Vol. I, p. 184, and this JOURNAL, March, 1902, p. 274.

[3] *Cf. Interstate Commerce Commission, Thirteenth Annual Report*, p. 12.

[4] *Estadistica de los Ferrocarriles*, 1899, pp. 104 f. [5] Calculated from *ibid.*

corn and barley) and together 98.6 per cent. of the total grain transported; these thirteen railways, with a total length of 7,328 miles, had 807 stations, or one station for about each 9 miles. The average number of miles to a station on these thirteen roads varied between 7.5 miles and 12.8 miles. The maximum distance between two stations was 33 miles. The same result finally is arrived at if the investigation is restricted to those three lines which carried each more than 500,000 tons of grain in 1899, and together about 55 per cent. of the total grain freight, viz., the Sud de Buenos Aires, the Oeste de Buenos Aires, and the Central Argentino. With a total length of 3,708 miles, they had 394 stations, or again, one station to about each 9 miles (see table on p. 347, columns 1 to 4).

The author is not aware of any publication giving similarly comprehensive data for the railways of the United States. Moreover, no information is available as to the comparative regularity in the distribution of the railways and the stations in the wheat territory of both countries, and none as to the comparative directness of the roads from the farms to the stations or elevators. In order to get a conception of the average distance which the farmer has to haul his wheat by animal power, recourse must then be had to the various calculations and estimates which have been made for both countries.

In a report on "Transportation of Wheat in the Province of Santa Fé," written in September, 1895, Willis E. Baker, United States consul in Rosario, assumes that the average distance from the farm to the railway station is 3 leagues[1] (9.7 miles)[2]. In a similar way Alejandro Grant, manager of the Buenos Aires Central Market, in a letter of September, 1895, to Mr. Baker, on "Cost of Wheat Transportation," counts 3 leagues as the haul in the southern portion of the province of Buenos Aires,[3] while a land company of Buenos Aires recently (May, 1901), gave 2

[1] *Consular Reports, Commerce, Manufactures*, etc., Vol. XLIX, No. 183, December, 1895, p. 475. The same average is given in a report of the Argentine Department of Agriculture (*Memórias de las Direcciones de Comércio é Industrias, Tierras y Colonias, Agricultura y Ganadería é Inmigracion*, Buenos Aires, 1899, p. 135.

[2] 1 league = 3.22864 miles. [3] *Consular Reports, loc. cit.*, p. 469.

to 3 leagues (6.5 to 9.7 miles) as the distance from its farms in the same district.[1] In his excellent studies on agriculture and colonization in Spanish America, Karl Kaerger, after a very careful examination of the subject, reaches the conclusion that, in the central wheat region of Santa Fé, the farmer has to haul his wheat on an average 7.3 miles, and in the main wheat region of Córdoba, 13.5 miles.[2] Eight or nine miles may then be taken as the average distance from the Argentine wheat farm to the nearest railway station.

In 1893 the government of the United States, in accordance with a law passed by Congress in March of that year, appointed Mr. Roy Stone as a special agent to gather information as to the traffic of the country roads in the United States.[3] After two years of investigation, returns from about 1200 counties were compiled, and "the result shows that the average length of haul in the eastern states is 5.9 miles; in the northern states 6.9 miles; in the middle states 8.8 miles; in the cotton states 12.6 miles; in the prairie states 8.8 miles; in the Pacific coast and mountain states 23.3 miles; and in the whole United States 12.1 miles."[4] Since this first investigation of the department of agriculture the question has been taken up in various states. Thus an investigation made in 1897 by the Bureau of Labor Statistics of Wisconsin, and covering 1,510 reports of farmers, showed the average haul to be about 6¾ miles;[5] while an investigation made by the Geological Survey of Maryland, and giving

[1] *Review of the River Plate* (Buenos Aires, May 11, 1901) p. 29 (partly reprinted in this JOURNAL, March 1902, pp. 279 f.).

[2] KAERGER, *loc. cit.*, Vol. I, pp. 183–194.

[3] Address of Martin Dodge on "Better Roads and Larger Profits," in *Report of the Ohio Road Commission* (under Authority of House Joint Resolution No. 59, Seventieth General Assembly), p. 24.

[4] United States Department of Agriculture, office of Road Inquiry, *Circular No. 19* (*cf.* the criticism of this investigation by Ira O. Baker, "Fallacies in Good-Road Economies," *Engineering News*, Vol. XLIV, No. 20, November 15, 1900, pp. 322–25). The Ohio Road Commission in agreement with John M. Stahl had estimated the average haul over country highways to be eight miles (*cf. Report*, pp. 18, 25).

[5] *Eighth Biennial Report of the Bureau of Labor and Industrial Statistics, State of Wisconsin*, 1897–8, pp. 158, 194.

the average hauling distance for each county in Maryland, showed it to vary in the twenty-three counties from 3 miles (Caroline) to 13 miles (Prince George's and Montgomery), giving an average for the state of 6.7 miles.[1] Finally in his report to the Industrial Commission on the distribution of farm products, John Franklin Crowell says that "it has been shown after careful inquiry, that the average haul of the American farmer in getting his produce to market, or to the nearest shipping station, is 12 miles."[2] It thus seems that the average distance from the wheat farm in the United States to the nearest shipping point is probably not shorter than in Argentina.

As to the cost of hauling the wheat, Baker, in a consular report on "Transportation of Wheat in the Argentine Republic," states, without giving the distance for the haul, that "the cost of moving grain from the farms to the railway stations is a very inconsiderable item — not 75 cents (gold) per ton"[3] (about 65½ American cents for a net ton of 2,000 pounds, that is, 2 cents per bushel of wheat). He later on gives $0.70 (61 American cents per ton) as the average cost from the farm to the station.[4] With regard to the southern portion of the province

[1] ARTHUR NEWHALL JOHNSON, "The Present Condition of Maryland Highways," *Maryland Geological Survey*, Vol. III (Baltimore, 1899), p. 208.

[2] *Report to the Industrial Commission*, Vol. VI, p. 446. In discussing the methods of handling grain in California, T. C. Friedlaender makes the surprising statement that "the average haul will probably not exceed 3 miles" (*ibid.*, p. 96).

[3] *Consular Reports, loc. cit.*, p. 461.

[4] *Ibid.*, p. 469. In his report on "Transportation of Wheat in the Province of Santa Fé," Mr. Baker says: "When the roads are in ordinary condition, it is considered that the charge for cartage will be about $1, paper currency — say 35 cents gold — per ton per league. Assume that the average distance is 3 leagues from the station, and we have $1.05 gold for cartage." This would give 92 cents for the total haul per net ton. But as the average price of gold in 1894 was 357, in 1895 344, Baker evidently meant to put 3.50 paper pesos equal to 1 gold peso. If these values are substituted, the total haul per net ton would be only 75 cents (2¼ cents per bushel), the haul per ton per mile 7¾ cents. In agreement with Baker, who gives 3.15 paper pesos for the average haul of 3 leagues in Santa Fé, the Argentine Department of Agriculture in 1899 quotes $3 (*cf. loc. cit.*, p. 135). The value of the paper, however, had meanwhile increased considerably, and the estimate of the Department of Agriculture in 1899 means in fact in American equivalents $1.17 per ton for the whole distance (3½ cents per bushel) and 12 cents per ton per mile.

of Buenos Aires, Grant[1] says: "The cartage from the chacra to the railway station for a distance of about 3 leagues costs just now $2.80 paper money per ton. In summer, when the roads are in good condition, this charge is much less." As he states the rate of exchange to be 1 : 3.335 at the time when he wrote his letter (September, 1895), his statement shows the cost of hauling a net ton for the entire distance to have been 73½ cents (2⅛ cents per bushel) and 7.6 cents per ton per mile.[2] In discussing the average cost of hauling the wheat from the farm to the nearest shipping station in the provinces of Santa Fé and Buenos Aires, Kaerger finds an average expense of only from 45 to 60 cents per net ton (1⅛ to 1⅝ cents per bushel) and shows the cost per ton per mile to be only from about 6 to 8 cents in the former province.[3] Even in taking full account of the fact that with the increase of the value of the paper currency at the end of the nineties, the prices measured in gold have considerably increased, it seems safe to assume that the average cost of hauling a ton of wheat a mile in Argentina would not be far from 10 cents and that the average expense of hauling a ton of wheat from the farm to the nearest shipping station will probably be less than one dollar (3 cents per bushel).

In his investigation relating to the traffic of the country roads in the United States, Roy Stone came to the following results as to the average cost per ton of 2,000 pounds per mile:

[1] *Consular Reports, loc. cit.*, p. 475.

[2] In a letter of August 27, 1895, on "Wheat Trade and Transportation in the Argentine Republic," to Mr. Baker, Henry D. Woolfe (*ibid.*, p. 473) states: "From the best sources I learn that the expenses may be set at from 40 to 60 cents (paper) per 100 kilos." In an appended "*pro forma* invoice of a shipment of wheat, which exhibits the cost when the gold rate was at 270 premium," Woolfe gives (p. 475) as the cartage from a farm in the province of Santa Fé to railroad station 40 cents (paper) per 100 kg., or 95 cents per net ton (2⅜ cents per bushel). In a similar way the above mentioned land company of Buenos Aires, in its statement of May, 1901, estimated the cartage to rail from its farms in the southern portion of the province of Buenos Aires to be 40 cents (paper) per 100 kg. But the premium on gold had meanwhile decreased so considerably that this cost would be equivalent to $1.54 per net ton for the entire haul (4⅖ cents per bushel), and as the company assumes the distance to be from 2 to 3 leagues, 19 cents per ton per mile.

[3] *Cf.* KAERGER, *loc. cit.*, Vol. I, pp. 210, 545.

in the eastern states 32 cents; northern states, 27 cents; middle southern states, 31 cents; cotton states, 25 cents; prairie states, 22 cents; Pacific coast and mountain states, 22 cents; and the whole United States, 25 cents.[1] Martin Dodge, in his capacity as president of the Ohio Road Commission, appointed in 1893, found the cost of moving freight per ton per mile to vary in the various counties between 10 and 50 cents, the average rate for the state being 25 cents.[2] According to the reports from 510 farmers in the state of Wisconsin, the cost of hauling a ton of wheat one mile would have averaged in this state only about 15 cents;[3] while the Geological Survey of Maryland found the average haul to be in that state 26 cents per mile.[4] Crowell, in his report to the Industrial Commission, again agrees with the results of Roy Stone when he says: "The average cost per ton for hauling over the common country roads is 25 cents per ton per mile.[5]

As to the average total cost per ton for the whole length of haul, Roy Stone gives for the eastern states, $1.89; northern states, $1.86; middle southern states, $2.72; cotton states, $3.05; prairie states, $1.94; Pacific coast and mountain states, $5.12; and the whole United States, $3.02[6] (9 cents per bushel). According to the reports from the same 510 farmers of the state of Wisconsin, the cost of hauling wheat averaged 2.8 cents per bushel, which would be equal to only 93⅓ cents per ton,[7] while

[1] Office of Road Inquiry, *Circular No. 19*.

[2] *Report of the Ohio Road Commission, loc. cit.* (*cf.* also testimony of Martin Dodge before the Industrial Commission, Vol. X, pp. 690–716, and *idem.*, "The Good-Roads Movement," in *American Monthly Review of Reviews*, January, 1902, pp. 66–72).

[3] *Cf. Eighth Biennial Report of the Bureau of Labor and Industrial Statistics, State of Wisconsin*, 1897–8, p. 169.

[4] *Maryland Geological Survey*, Vol. III, p. 211.

[5] *Industrial Commission*, Vol. VI, p. 446.

[6] Office of Road Inquiry, *Circular No. 19*.

[7] *Wisconsin Labor Bureau, loc. cit.*, p. 169. In a similar way Michael P. Moran, president of the National Grain Growers' Co-operative Association, gave to the Industrial Commission (Vol. X, p. 707) 3 cents as the average cost for 11 years of hauling a bushel of wheat to market from 3 to 7 miles in Bigstone county, Minn.; this makes exactly one dollar per ton.

the Geological Survey of Maryland estimates the cost of the haul in its state to be $1.74[1] (5¼ cents per bushel). As a result of a special investigation made for West Virginia, Crowell shows that the cost of moving farm products to shipping points varies in fifty-four counties between $1 (Brooke, Jefferson, Mason, Ohio, and Wood) and $10 (Pocahontas). He comes to the conclusion that the average cost of hauling a ton to the railroad station in West Virginia is $3.40 (10⅛ cents per bushel), while he considers $3 (9 cents per bushel) as the average cost to the American farmer in getting his produce to market.[2]

While the compilation of these various estimates for both countries perhaps serves its purpose of throwing some light upon the question of the cost of transportation from the farms to the nearest shipping point, the figures by no means allow of final conclusions. The reasons for this are obvious. First, the number of actual observations upon which all the figures are based is not large enough to prove something for the country as a whole; second, they do not all refer to wheat, but some of them to loads of any kind of freight; third, the cost of hauling seems to include in some cases that for loading and unloading, and in others not; and, fourth, the costs themselves are estimated according to different methods. Yet the differences found between the estimates for both countries are so large that there is hardly any doubt that the cost of hauling the wheat from the farm to the nearest railway station is considerably higher in the United States than in Argentina.

After having reached the local railway station in Argentina, the wheat to be exported is generally carried directly by rail to the shipping port. While this is true in the United States for the wheat of the Pacific coast region—which has also, in common with the Argentine wheat, a much longer ocean transportation to Europe than the North American going over Atlantic or Gulf ports—the export wheat grown east of the Rocky

[1] *Cf.* HARRY FIELDING REID, "The advantages of good roads in Maryland," *Geological Survey*, Vol. III, p. 409.

[2] *Industrial Commission*, Vol. VI, p. 447.

Name of Road.	December 31, 1899.				Rates on Wheat in 1899.4			
	Mileage.[1]	Number of Stations.[2]	Average number of Miles to one Station.	Maximum Distance between Stations in Miles.[3]	Minimum to which Rate Applies.[5]	Per 1000 Kilogr'm Paper Pesos.[6] Terminal Charge.	Per 1000 Kilogr'm Paper Pesos.[6] Rate per Kilometer.	Remarks.
Andino (State railway)....	220.5	18	12.3	33	6000 kg	0.64	0.019	
Sud de Buenos Aires.....	2294.5	218	10.5	32	5000 kg	2.12	0.02 0.01	
Oeste de Buenos Aires.....	567.8	72	7.9	25	5000 kg	2.50	0.013	Approximately.
Buenos Aires al Rosario...	935.3	114	8.2	21	Car load	1.70	0.0255 0.017	< 100 km. > 100 km.
Central Argentino.....	845.8	104	8.1	20	Car load	1.10	0.033 0.016	Up to 150 km. > 150 km.
Buenos Aires al Pacifico...	427.1	43	9.9	21	5000 kg	1.50	0.021 0.009	Up to 200 km. > 200 km.
Villa Maria á Rufino.....	141.0	11	12.8	27	5000 kg	1.65	0.018	
Oeste Santafecino.....	130.8	17	7.7	14	6000 kg	0.50	0.05	
Grand Sud de S. Fé y Córdoba	240.3	22	10.9	16	Car load	0 50	0.03 0.02 0.015	Up to 100 km. 100 to 200 km. 200 to 300 km.
Entre Rios.....	399.5	44	9.1	17	.....	2.00	0.023	
Provincia di Santa Fé.....	814.6	87	9.4	19	Car load	2.40	0.016	
Central Córdoba Sec. Este..	130.8	13	10.1	19	6000 kg	2.00	0.02	
Córdoba y Rosario.....	179.5	24	7.5	14	Car load	1.50	0.02	

[1] Calculated from *Estadistica de los Ferrocarriles*, 1899, pp. 104 f.

[2] *Cf. ibid.*, pp. 108 f.

[3] Calculated from *ibid.*, pp. 108 f.

[4] *Cf. ibid.*, pp., 274 f.

[5] No minimum given for the Entre Rios road.

[6] The rates are given in paper pesos at a value of 227 paper pesos equal to 100 gold pesos. The average price of gold in 1899 has indeed been 224.62 (*cf. Review of the River Plate*, Saturday, January 4, 1902, p. 191); the maximum premium on gold having been 143.4 (October 26), the minimum 104.0 (January 11) (*cf. Anuario de la Estadistica*, 1899, Tomo I, pp. 393–409).

Mountains is in part brought by rail at a local rate to a primary market, and in part sent at a through rate to the ocean.

In Argentina wheat is hardly ever carried by rail over more than perhaps two hundred and fifty miles. The average distance of the local railway station from the shipping port is not higher than perhaps one hundred, at the utmost one hundred fifty miles.[1] The above table gives for each of the thirteen roads which

[1] *Cf.* Kaerger, *loc. cit.*, Vol. I, pp. 197 ff., 418, 545 f. In his report on "Transportation of Wheat in the Argentine Republic" Mr. Baker says (*loc. cit.*, p. 460 f.): ". . . . it must be borne in mind that the Argentine wheat regions are at the present time in the provinces of Buenos Aires, Santa Fé, and Entre Rios — all three bordering on water courses which are navigable for ordinary-sized ocean craft — and their distances from the principal ports of export, in no instance, probably exceed 150 miles." In his report on "Transportation of Wheat in the Province of Santa Fé" (*loc cit.*,

in 1899 carried more than thirty thousand net tons of grain, the rates exactly as they were published by the Argentine department of public works.

In order to get a fair idea of the charges made by the Argentine railways upon the wheat, it is necessary to compare their short haul rates with local wheat rates in the United States. The following table shows for a number of distances the rates charged by the thirteen Argentine railways, together with a series of thirteen rates at present in force in the United States.[1]

For distances under 100 miles the Argentine rates are decidedly lower than those of the railways selected for the United States.[2] For a distance of 10 miles, seven of the thirteen Argentine railways charge less than 4 cents per 100 pounds of wheat, which is the minimum found for the United States, while the maximum of 5.12 cents found for Argentina is exceeded in three cases in the United States. Eight Argentine railways charge for 25 miles less than the United States minimum of 5.30 cents, and eight in the latter country exceed the maximum of 5.87 cents of Argentina. Five Argentine railways charge for 50 miles less than 6.30 cents, the minimum for the United States, and the

p. 475), he further states that "an area distant about one hundred kilometers (60 miles) from Rosario . . . . would represent the bulk of the wheat production of the province of Santa Fé." William Goodwin, in his pamphlet on *Wheat Growing in Argentina* (Liverpool, 1895), says (p. 46) that "the average distance from station to seaboard is about one hundred miles." The land company of Buenos Aires, before mentioned, states as a special drawback of its lands and as the reason for the small rent which it requires for them that they are 150 miles distant from a seaport.

[1] An illustration may show the calculations which have been made in order to make the Argentine rates comparable with those copied from the North American schedules. The Argentine table gives for the Andino line: Terminal charge, per 1,000 kg, 64 centavos; rate per kilometer, per 1,000 kg, 1.9 centavos. This makes for 100 pounds for 10 miles $\frac{64 \times 96.48}{22.0462 \times 227}$ cents $+ \frac{10 \times 19 \times 96.48}{0.62137 \times 22.0462 \times 227}$ cents $= 1.82$ cents (1 paper peso $= \frac{96.48}{227}$ cents; 1,000 kg $= 2,204.62$ pounds, 1 km $= 0.62137$ mile). No information is given as to what distances the two rates of the Sud de Buenos Aires road apply. As the two rates of the same road for lumber apply to less than 350 and more than 350 km each, this limit of 217.5 miles has been assumed to be the one also prevailing for wheat.

[2] It may be observed that this is especially the case with the Andino road, the only line of those taken into consideration which is owned by the state.

FREIGHT-RATES IN CENTS PER HUNDRED POUNDS OF WHEAT[1] IN ARGENTINA AND IN THE UNITED STATES FOR VARIOUS DISTANCES (MILES).[2]

Railroads.	10	25	50	75	100	125	150	200	250	300
Andino	1.82	2.71	4.18	5.65	7.13	8.60	10.08	13.02	[15.97]	[18.92]
Sud de Buenos Aires	4.71	5.64	7.19	8.74	10.29	11.84	13.39	16.50	18.59	20.14
Oeste de Buenos Aires	5.22	5.83	6.84	7.84	8.85	9.86	10.87	12.89	14.90	16.92
Buenos Aires al Rosario	4.07	5.26	7.23	8.83	10.15	11.47	12.79	15.43	18.06	20.70
Central Argentino	3.14	4.68	7.24	9.80	12.00	13.24	14.48	16.96	19.45	21.93
Buenos Aires al Pacifico	3.54	4.52	6.15	7.78	9.41	11.01	11.71	13.10	14.50	15.89
Villa Maria á Rufino	3.74	4.58	5.97	7.37	8.77	10.16	[11.56]	[14.35]	[17.14]	[19.94]
Oeste Santafecino	2.52	4.84	8.72	12.60	16.48	20.35	[24.23]	[31.99]	[39.74]	[47.50]
Grand Sud de Santa Fé y Córdoba	1.89	3.29	5.62	7.55	9.10	10.64	11.80	14.13	16.45	18.78
Entre Rios	4.57	5.64	7.42	9.21	10.99	12.78	14.56	18.13	21.69	25.26
Provincia de Santa Fé	5.12	5.87	7.11	8.35	10.59	10.83	12.07	14.55	17.04	19.52
Central Córdoba, Sec. Este	4.48	5.41	6.96	8.51	10.06	11.61	[13.16]	[16.26]	[19.37]	[22.47]
Córdoba y Rosario	3.51	4.44	5.99	7.55	9.10	10.65	12.20	15.30	18.40	21.51
State of Illinois.[3] Class A	4.45	5.43	6.76	8.10	8.91	9.56	10.24	11.58	12.47	13.40
State of Illinois. Class B.	4.67	5.70	7.10	8.51	9.36	10.04	10.75	12.16	13.09	14.07
State of Iowa.[4] Class A	4.70	5.30	6.30	7.30	8.10	8.80	9.50	10.80	12.15	13.53
State of Iowa. Class B	5.40	6.10	7.25	8.40	9.32	10.12	10.92	12.42	13.97	15.56
State of Iowa. Class C	6.11	6.89	8.19	9.49	10.53	11.44	12.35	14.04	15.80	17.59
Burlington & Missouri River Railroad (Kan., Neb.[5])	5.00	6.00	8.50	11.00	13.00	15.00	16.00	18.00	19.00	20.00
Missouri Pacific Railway (Kan., Mo.)[6] / Santa Fé System (Kan., Neb., Okla., I. T.).[7] Local rates	5.00	6.00	8.00	8.50	10.50	11.50	14.00	15.25	16.00	16.50
Santa Fé System (Kan., Neb., Okla., I. T.). Interstate rates	6.50	8.00	10.50	13.00	15.50	18.00	20.50	24.50	26.00	27.25
Chicago, Milwaukee & St. Paul Railway (Minn.).[8]	4.50	7.50	10.00	11.25	12.50	14.00	15.00	17.50	19.00	20.00
Chicago, Milwaukee & St. Paul Railway. Interstate.[9]	5.00	6.50	9.00	11.00	13.00	15.00	16.00	18.50	21.00	23.00
Northern Pacific Railway (Wis., Minn., N. Dak.).[10]	4.00	5.50	8.00	10.00	12.00	13.50	14.50	17.00	19.50	22.00
Great Northern Railway (Minn., N. D., S. Dak.).[11]	4.00	5.50	8.00	10.00	12.00	13.50	14.50	17.00	19.50	22.00

[1] If not otherwise stated in the table on p. 347, the rates apply only to carloads, as which by the railways mentioned for the United States are considered 24,000 pounds, with the exception of the rates of the Burlington & Missouri River Railroad, which, according to an amendment of September 25, 1901, refer to 30,000 pounds. Bracketed figures indicate that the distances are greater than the length of the road.

[2] The rates for the Argentine and the Illinois railways apply to the actual mileage given in the headings. For the other railways of the United States mentioned the rates for 10 miles apply to all distances of 10 and over 5 miles (Burlington & Missouri River Railroad, Chicago, Milwaukee & St. Paul Railway interstate, and Northern Pacific Railway to all distances of 10 and under 10; Missouri Pacific Railway and Santa Fé System local to 15 and under 15); those for 25 to all distances of 25 and over 20 (Burlington & Missouri River Railroad, Missouri Pacific Railway, and Santa Fé System local rates to 25 and over 15); those for 50 to 50 and over 45 (Missouri Pacific Railway and Santa Fé System local to 55 and over 45); those for 75 to 75 and over 70 (Missouri Pacific Railway, Santa Fé System local rates, Chicago, Milwaukee & St. Paul Railway interstate, Northern Pacific Railway and Great Northern Railway, to 75 and over 65); those for 100 to 100 and over 95 (Burlington & Missouri River Railroad to 100 and over 90; Missouri Pacific Railway and Santa Fé System local to 105 and over 95); those for 125 to 125 and over 120 (Burlington & Missouri River Railroad to 140 and over 120; Chicago, Milwaukee & St. Paul Railway, Northern Pacific Railway, and Great Northern Railway, to 130 and over 120; Missouri Pacific Railway and Santa Fé System local rates to 125 and over 115); those for 150 to 150 and over 145 (Burlington & Missouri River Railroad to 160 and over 140; Missouri Pacific Railway and Santa Fé System local to 155 and over 145; Chicago, Milwaukee & St. Paul Railway, Northern Pacific Railway, and Great Northern Railway, to 150 and over 140); those for 200 to 200 and over 195 (Burlington & Missouri River Railroad to 240 and over 180; Missouri Pacific Railway and Santa Fé System local to 200 and over 185; Chicago, Milwaukee & St. Paul Railway Minnesota to 209 and over 190; the same interstate, Northern Pacific Railway, and Great Northern Railway, to 200 and over 190); those for 250 to 250 and over 240 (Burlington & Missouri River Railroad, Missouri Pacific Railway and Santa Fé System, local, to 280 and over 240; Chicago, Milwaukee & St. Paul Railway Minnesota to 269 and over 249); those for 300 to 300 and over 290 (Burlington & Missouri River Railroad to 330 and over 280; Missouri Pacific Railway, Santa Fé System local, Chicago, Milwaukee & St. Paul Railway, Northern Pacific Railway, and Great Northern Railway, to 310 and over 290).

[3] *Cf. Illinois Commissioners' Classification of Railroads to take effect January 1, 1900.* State of Illinois, Railroad and Warehouse Commission, Springfield. (Forty-one roads belong to Class A and twenty-five to Class B.)

[4] *Cf. Iowa Classification No. 12* (taking effect October 1, 1901). Prepared by the Board of Railroad Commissioners of the State of Iowa, Des Moines, 1901. (Sixteen roads belong to Class A, four to Class B, and eighteen to Class C.)

[5] *Cf.* Burlington & Missouri River Railroad in Nebraska. Special Distance Tariff on Grain and Grain Products, carloads, taking effect February 17, 1901; in force between stations in Nebraska, between stations in Kansas, between stations in Nebraska and stations in Kansas, between stations in Nebraska and Kansas and Fortescue or Napier, Mo.; from stations in Nebraska to Laird and Wray, Colo.

[6] *Cf.* The Missouri Pacific Railway Company Distance Tariff No. 4043; effective February 7, 1901; applying locally between stations in Kansas and interstate between stations in Missouri west of and including Independence, Pleasant Hill, Holden, Harrisonville, Monteith Junction, Rich Hill, Nevada, and Joplin.

[7] *Cf.* Santa Fé System. Tariff No. 20A. Distance Rates in Classes, Commodities, and Live Stock. Local and interstate, applying within and between Kansas, Nebraska, Oklahoma Territory, Indian Territory, and Panhandle of Texas Effective June 12, 1901.

[8] *Cf.* Chicago, Milwaukee & St. Paul Railway. Distance Tariff applying on freight traffic between stations in Minnesota, also on interstate traffic between stations in Minnesota and Iowa. Effective November 26, 1900.

[9] *Cf.* Chicago, Milwaukee & St. Paul Railway. Interstate Distance Tariff on line of this company (except between points in Iowa and Missouri or between points in Iowa and Minnesota); also applying on local traffic within the states of Michigan, North Dakota, and South Dakota. Effective December 2, 1895.

[10] *Cf.* Northern Pacific Railway Company. Distance Tariff, applying between stations in Wisconsin, Minnesota, and North Dakota east of and including Beach, Mont., except locally on the St. Paul-Duluth Division, but will apply on traffic interchanged between stations on the St. Paul-Duluth Division (except Ironton, Spirit Lake, New Duluth, and Fond du Lac) and other stations in Wisconsin, Minnesota, and North Dakota. Takes effect January 25, 1902.

[11] *Cf.* Great Northern Railway, Duluth, Watertown & Pacific Railway. Distance Tariff, applying on state and interstate shipments between stations on above-named lines in Minnesota, North Dakota, and South Dakota. Effective June 15, 1900.

maximum of 8.72 cents of Argentina is exceeded in three cases in the United States. While six Argentine lines charge for 75 miles less than 8 cents, and only one more than 10 cents, only one case of less than 8 cents, and six of 10 cents and more will be found in the United States.

For distances from 100 to 150 miles the rates are more similar in both countries; but while there are in Argentina only two lines charging for 100 miles more than 11 cents, only three charging more than $\frac{1}{10}$ cent per mile for 125 miles, and none charging as much for 150 miles, there are in the United States six cases with more than 11 cents for 100 miles, the same with more than $\frac{1}{10}$ cent per mile for 125 miles, and four with more than $\frac{1}{10}$ cent per mile for 150 miles.

At 200 miles the rates in both countries are much the same, while beyond this limit the rate per mile decreases faster in the United States than in Argentina.[1]

If, then, the average distance from the local station in Argentina to the shipping port is assumed to be about from 100 to 150 miles, the average freight per 100 pounds of wheat will

[1] It might be well to compare these general wheat schedules in force in the United States with some actual wheat rates applied from certain specific points to certain primary markets. In his report on "Distribution of Farm Products," Crowell gives the rates on wheat per 100 pounds in force on February 1, 1897, from a number of points to either St. Paul, Minneapolis, or Duluth, together with their distance to the primary market. (*Ind. Comm.*, Vol. VI, pp. 89–93.) The following table is compiled from the data given by Crowell, the last column containing the results of the opposite insert table.

Number of Local Stations Considered.	Distance to Primary Market in Miles.	Rates in Cents per 100 Pounds.	Rates of Thirteen Schedules in Table.
11	25	4–8	5.3–8
11	50	7–12	6.3–10.5
14	75	9–12	7.3–13
11	100	9–15	8.1–15.5
8	150	11.5–14.5	9.5–20.5
9	200	13.5–17	10.8–24.5
6	250	14.5–16	12.15–26

A comparison of the rates given by Crowell with those of the general schedules does not show any marked difference.

probably be about 11 or 12 cents, or 7 cents per bushel.[1] The railway freight rate of the Pacific coast wheat to the ocean seems to be somewhat higher. It has been estimated that the average rate from points in Oregon and Washington to the Puget Sound ports is about 10⅓ cents per bushel.[2] With regard to the freight charges from the local station to the primary market in the wheat regions of the United States east of the Rocky Mountains, it would be difficult to estimate the average charge. This rate indeed varies between a nominal amount and — exceptional cases excluded — about 15 cents per bushel, the latter being the rate from some western Kansas and Nebraska points to Chicago.[3] It may, however, be supposed that the average will not be very far from that of 7 cents found for Argentina.[4]

After having reached the primary market, the wheat to be exported is then carried either by water or by rail to the ocean. While about three-fourths of the total wheat shipped from Chicago,[5] and a still larger proportion of that shipped from Duluth, leaves the primary market by water, there is only a small part which reaches the ocean by water, most of it being loaded on rail at Buffalo or some other point. The amount of wheat shipped from St. Louis to New Orleans by way of the Mississippi

[1] KAERGER (*loc. cit.*, Vol. I, pp. 199 f., 212, 218 f. 546) gives as the average rate of transportation per 100 pounds of wheat from the local station in the provinces of Santa Fé and Buenos Ayres to the ocean 10¾ cents, from Córdoba 14½ cents. In several estimates quoted by Baker (*loc. cit.*, pp. 466, 470, 475 f.) the average rate per 100 pounds varies between 6½ and 17½ cents.

[2] *Cf. Industrial Commission*, Vol. VI, p. 102. [3] *Cf. ibid.*, pp. 130, 134.

[4] In calculating the expenses of marketing wheat at St. Louis in November, 1899, the following rates have been found per bushel of wheat: From Tipton, Mo. (163 miles), 6 cents; from Bloomfield, Iowa (258 miles), and Woodburn, Iowa (368 miles), 7.8 cents; from Indianola, Iowa (385 miles), 9.6 cents; from Crete, Neb. (486 miles), 12 cents; from Hutchison, Kan. (590 miles), 12.6 cents. Calculations made for the same time in Kansas City have shown the following results: from Falls City, Neb. (101 miles), 4.8 cents; from Wellington, Kan. (273 miles), 7.2 cents; from McPherson, Kan. (217 miles), 7.8 cents; from Bennington, Kan. (187 miles), 8.4 cents; from Perry, Okla. (338 miles), 9.9 cents; from Blue Hill, Neb. (301 miles), 10.3 cents; from Oklahoma City, Okla. (400 miles), 13.2 cents. (*Cf. ibid.*, pp. 80, 86,)

[5] *Cf. ibid.*, p. 142.

is also not very large, most of the export wheat being shipped by rail to New York.

The different average rates in cents per bushel of wheat from Chicago and St. Louis to the ocean for the last twelve years will be seen from the following table :[1]

Years.	From Chicago to New York.			From St. Louis to New York by Rail.[2]	From St. Louis to New Orleans by River.
	By all Rail.	By Lake and Rail.	By Lake and Canal.		
1890	14.31	8.5	5.85	16.58	6.58
1891	15	8.53	5.96	17.40	6.88
1892	14.23	7.55	5.61	15.97	6.50
1893	14.70	8.44	6.33	17.10	6.55
1894	12.88	7	4.44	14.84	5.89
1895	12.17	6.95	4.11	14.14	5.95
1896	12	7.32	5.38	13.60	5
1897	12.32	7.37	4.35	14.18	4.88
1898	11.55	4.96	4.42	13.35	4.50
1899	11.13	6.63	5.65	13.17	4.50
1900	9.08[3]	5.05	4.42	11.63	4.25[4]
1901	9.02[3]	5.57	5.14	11.60	4.25[4]

According to this table the rates have varied in the last twelve years from St. Louis to New York by rail between 11.6 and 17.4 cents, by water to New Orleans between 4.25 and 6.9 cents. According to the New York Produce Exchange, from whose reports the rates from Chicago have been taken, the average rate between the latter city and New York by all rail has varied between 9 and 15 cents, by lake and rail between 5 and 8.5 cents, by lake and canal between 4.1 and 6.3 cents.[5] The lake rate from Duluth to Buffalo being about one cent higher than that from Chicago, the freight by lake and rail and

[1] *Cf. Statistical Abstract of United States*, 1901, pp. 402 f.

[2] The rates are given per 100 pounds; here they have been expressed in bushels of 60 pounds.

[3] Local rate for export. [4] F. o. b. New Orleans.

[5] The rates given in the reports of the Board of Trade of Chicago are much the same so far as the transportation by all rail, and lake and rail are concerned, but are, up to 1898, considerably higher for the lake and canal freight (*cf. Forty-third Annual Report of the Trade and Commerce of Chicago*, p. 108). The difference is partly due to the fact that the Buffalo charges are included in the rates of the Chicago Board of Trade.

by lake and canal will be about one cent higher from Duluth to New York than from Chicago.[1] A comparison of the lake and rail rates from Chicago to Boston with those from Chicago to New York, shows the former to be 3 cents higher than the latter.[2] The difference between the all-rail freight rates on wheat from Chicago to the several Atlantic ports will be seen from the following table.[3]

During these five years the published rate was thus from Chicago to Boston 1.2 cents higher, to Philadelphia 1.2 cents lower, and to Baltimore 1.8 cents lower than to New York. As the 12-cent rate from Chicago to New York was in force during the larger part of these five years, the prevailing rate to Boston was 13.2 cents, to Philadelphia 10.8 cents, to Baltimore 10.2 cents. Since the beginning of 1899 separate rates are published for the domestic and the export trade. The rates on export

[1] The average daily rates per bushel of wheat to Buffalo were as follows:

Season.	From Chicago.	From Duluth.	Season.	From Chicago.	From Duluth.
1890	1.96	2 –5	1896	1.70	2.12
1891	2.38	1¾–9¼	1897	1.56	1.75
1892	2.19	2⅛–4	1898	1.53	1.8
1893	1.66	1¾–3⅛	1899	2.71	3.6
1894	1.27	1¾–3	1900	1.79	2.0
1895	1.97	3.5	1901	1.42	2.3

Cf. Monthly Summary of Commerce and Finance, December, 1901, pp. 2391 f.

[2] The weekly freight rates per bushel of wheat in cents from Chicago to Buffalo by lake, and thence by rail to New York and to Boston, varied as follows:

Season.	To New York.	To Boston.
1894	7	9¾–10
1895	6½–8½	8½–11
1896	6¼–7¼	9½–11
1897	6¾–8	9¼–10½
1898	4¼–6	9½

Cf. Thirty-seventh Annual Report of the Board of Trade of Chicago, p. 113; *idem, Thirty-eighth Report*, p. 113; *idem, Thirty-ninth Report*, p. 113; *idem, Fortieth Report*, p.115; *idem, Forty-first Report*, p. 115.

[3] The rates are given per 100 pounds *ibid., Thirty-seventh Report*, p. 116; *Thirty-eighth Report*, p. 116; *Thirty-ninth Report*, p. 116; *Fortieth Report*, p. 118, and *Forty-first Report*, p. 119. Here they are expressed in bushels of 60 pounds.

ALL-RAIL FREIGHT RATES ON WHEAT FROM CHICAGO IN CENTS PER BUSHEL IN THE YEARS 1894 TO 1898.

Time During which Rate Was in Force.	To New York.	To Boston.	To Philadelphia.	To Baltimore.
January 1, 1894, to February 27, 1894...	15	16.2	13.8	13.2
February 27, 1894, to November 12, 1894	12	13.2	10.8	10.2
November 12, 1894, to December 31, 1894	15	16.2	13.8	13.2
January 1, 1894, to June 27, 1895.....	12	13.2	10.8	10.2
June 27, 1895 to July 8, 1895.....	9	10.2	7.8	7.2
July 8, 1895, to October 15, 1897.....	12	13.2	10.8	10.2
October 15, 1897, to December 31, 1897.	13.5	14.7	12.3	11.7
January 1, 1898, to June 27, 1898.....	12	13.2	10.8	10.2
June 27, 1898, to November 10, 1898....	10.8	12.0	9.6	9
November 10, 1898, to January 2, 1899..	12	13.2	10.8	10.2

wheat in force in the years 1899, 1900, and 1901, from Chicago to the same ports, will be seen from the following table:[1]

Time During which Rate was in Force.	To New York.	To Boston.	To Philadelphia	To Baltimore.
January 2, 1899, to February 1, 1899....	12	12	10.8	10.2
February 1, 1899, to March 1, 1899.....	9.6	9.6	9	8.7
March 1, 1899, to April 18, 1899.....	11.1	11.1	10.5	10.2
April 18, 1899, to June 26, 1899	9.3	9.3	8.7	8.4
June 26, 1899, to August 1, 1899.....	7.2	7.2	6.6	6.3
August 1, 1899, to September 18, 1899..	6.6	6.6	6	5.7
September 18, 1899, to November 1, 1899	8.4	8.4	7.8	7.5
November 1, 1899, to March 12, 1900...	12	12	11.4	11.1
March 13, 1900, to April 1, 1900.....	7.8	7.8	7.2	6.9
April 2, 1900, to October 31, 1900.....	8.1	8.1	7.5	7.2
November 1, 1900, to December 31, 1900	9.6	9.6	9	8.7
Year 1901.....	8.1	8.1	7.5	7.2

During these three years, the export rates to Boston were then always exactly the same as to New York, those to Philadelphia and Baltimore (with the exception of the first month where they were still as in the preceding years 1.2 and 1.8 cents lower than to New York) were 0.6 cents and 0.9 cents lower

[1] Calculated for 1899 and 1900 from *idem*, *Forty-second Report*, p. 118; *Forty-third Report*, p. 109; for 1901 from *Final Report of the Industrial Commission*, p. 172. According to the same authority, the export wheat rates from East St. Louis to New York, and to Boston, if one bushel of wheat is counted equal to 60 pounds, would have been 9.3 cents, to Philadelphia 8.7 cents, to Baltimore 8.4 cents. It may, however, be noted that these figures derived from a 100-pound rate are lower than those given in the table on page 351.

than to New York. The published rated from Chicago to New York varied between 6.6 and 12 cents.

If conditions in the years 1895 to 1901 only are taken into consideration, the average rates per bushel of wheat would have been about the following: Chicago–New York by lake and canal, 5 cents;[1] St. Louis–New Orleans by river, 5 cents; Chicago–New York by lake and rail, 6½ cents;[2] Chicago–Boston by lake and rail (1894 to 1898), 10 cents; and by all rail Chicago–New York, 11 cents; Chicago–Boston, 12 cents; Chicago–Philadelphia, 10 cents; Chicago–Baltimore, 9½ cents; St. Louis–New York, 13 cents. This would give for the wheat leaving the primary market by water a rate of from 5 to 10 cents, and for that making the entire trip by rail, from 10 to 13 cents. If 7 cents is added to each of these items as the rate from the local station to the primary market, the totals would vary between 12 and 17 cents for part-water transportation and from 17 to 20 for all-rail transportation.

It must, however, be taken into consideration that a part of the export wheat is carried from the local station to the seaboard on a through rate. This is especially true for a large part of the wheat grown east of the Mississippi in the "Central Freight Association Territory," from the various districts of which the through rates to New York are expressed as a percentage of the Chicago–New York rate. Thus the rates from various points in Illinois vary between 100 and 125 per cent of the Chicago–New York rate, those from Eastern Michigan between 84 and 120, those from Indiana between 86 and 110 per cent.[3] The export wheat from the territory around Chicago, from Eastern Michigan and from Indiana would then be carried to the seaboard on an average at about the same rate as from Chicago itself, while the wheat exported from some western points of Illinois near

[1] All rates from Duluth by lake (1895–1901) about ½ cent higher than from Chicago.

[2] 1894 to 1898, 7 cents.

[3] *Cf.* Group Map showing percentage basis of east-bound class-rates of individual lines. In effect January 1, 1899.

the Mississippi river would be charged the Chicago–New York rate plus an additional 25 per cent. of that rate. A part of the wheat exported from west of the Mississippi would thus be carried at a local rate to the river and thence enjoy the through rate to New York.[1]

Moreover there is little doubt that the railway rates actually paid did not always correspond to the published rates upon which the above calculations have, for the most part, been based. While this fact perhaps does not play a conspicuous part, so far as the transportation from the local station to the primary market is concerned, it is an important factor in the study of the through-rates to the seaboard.[2] The published wheat export rate by all rail from Chicago to New York for instance was in 1901, 13½ cents per 100 pounds. As to this rate, a recent inquiry made by the Interstate Commerce Commission showed that there was no claim that any export wheat moved upon the "published rate. Instead, the carriers operating between Chicago and the seaboard had agreed among themselves upon a rate 2½ cents lower than the published export rate. . . . While this rate was not published, the carriers stated that its existence was generally known to the shipping public, and that all shippers were able to avail themselves of it."[3] On the other hand it must be born in mind that this statement of the Interstate Commerce Commission only refers to the traffic of Chicago and

[1] So far as the transportation of corn on local and on through rates to the East is concerned, the Industrial Commission states in general (*Final Report*, p. 178): "The difference between the through and the local rate is in normal times from 2 to 3 cents a bushel on corn in favor of a through shipment." The same authority states at a later place (p. 349), in regard to local and through rates from Missouri river points, that the rate "to Chicago on grain for export is somewhat more than 3 cents lower per 100 pounds than on grain destined to Chicago for consumption there."

[2] It may however be noted that the Interstate Commerce Commission in its last report (January 17, 1902) points to the importance of the rebates accorded on the shipments even to primary markets. It states (*Fifteenth Annual Report*, p. 15): "At the present time grain and grain products move from points of origin to the seaboard generally upon secret rates. This is entirely true of that portion which is exported, and, in the main true of domestic traffic. No serious attempt was made, or could be made to distinguish between export and domestic in applying the cut rate to Chicago."

[3] *Ibid.* pp. 12 f.

not to other primary markets and further "that the 'agreed rate' . . . . was accorded only to Chicago. Intermediate points which usually take a percentage of the Chicago basis did not enjoy the benefit of this rate."[1]

OCEAN FREIGHT RATES ON WHEAT FROM AMERICA TO EUROPE IN CENTS PER BUSHEL.

Years.	New York to Liverpool.[2]	Boston to Liverpool.[2]	Philadelphia to Liverpool.[2]	Baltimore to Liverpool.[2]	New Orleans to Liverpool.[3]	San Francisco to Cork f.o. U. K., Havre, or Antwerp.[4]	Buenos Aires to	
							England.	Bremen and Hamburg.
1888	5.3	5.6	...	6.3	8.7	17.1	7.4	10.3
1889	8.0	6.5	...	9.1	11.4	21.4	9.1	9.5
1890	4.9	4.9	...	5.7	7.8	24.3	10.9	9.5
1891	6.3	5.4	...	7.0	8.9	27.3	11.1	7.8
1892	5.3	4.6	...	6.8	7.5	20.3	9.8	11.0
1893	4.8	3.8	5.8	5.7	8.2	14.8	10.3	10.5
1894	3.9	3.0	4.8	4.8	5.8	18.0	9.5	9.8
1895	5.2	3.3	4.7	4.9	6.2	17.6	9.1	9.2
1896	6.0	4.3	6.0	6.3	8.5	17.0	8.2	8.8
1897	6.2	...	...	6.4	8.0	15.5	4.5	4.5
1898	7.0	...	...	7.3	9.7	18.3	8.9	10.1
1899	4.9	...	...	5.8	7.8	16.9	...	14.3
1900	6.8	...	...	7.8	10.4	24.4	...	11.1
1901	2.5	...	...	...	5.2	25.1	...	...

Taking account of these various circumstances, it might then be said that the actual rate paid per bushel of wheat from the local station to the seaboard by part water transportation will

[1] *Ibid.* p. 12.

[2] Rates for 1888–96, calculated from *Summary of Commerce and Finance* for Jauuary, 1900, p. 1,987; rates for 1897–1901 for New York, from *Statistical Abstract of the United States*, 1901, p. 402; for 1897–1900 for Baltimore, from *Forty-third Annual Report of the Baltimore Chamber of Commerce*, pp. 145–50; *Forty-fourth Report*, pp. 136–41; *Forty-fifth Report*, pp. 138–43; *Forty-sixth Report*, pp. 136–41.

[3] Calculated from *Statistical Abstract*, 1901, p. 403.

[4] Calculated from *Thirty-fourth Annual Report of the San Francisco Produce Exchange*, p. 41, for the years ending June 30, 1888, etc. For the monthly average cargo rates in the calendar year 1901 from California, Puget Sound, and Columbia River points, see *Summary of Commerce and Finance* for December, 1901, p. 2,409.

[5] For the years 1888–90, calculated from *Anuario*, 1897, Vol. I, p. 343; for the years 1891–1900, from *ibid.*, 1900, Vol. I, pp. 408 f.

probably not have been very different from the above found rate of from 12 to 17 cents, while the average rate paid for all rail transportation will not have been, as assumed before, between 17 and 20 cents, but several cents less and perhaps not much higher than that for part-water transportation.

While, then, in recent years the average freight rate from the local station to the shipping port was about 7 cents per bushel in Argentina, it was in the Pacific coast region about 10⅓, and east of the Rocky Mountains to the Atlantic or Gulf ports about 14 or 15 cents.

The different ocean rates from Buenos Aires and from Atlantic and Pacific ports of the United States to the European markets will be seen from the opposite table.

According to this table the ocean rates per bushel of wheat varied then since 1888 from Buenos Aires to England between 4.5 and 11.1 cents; to German ports, between 4.5 and 14.3 cents; to Liverpool from New York, between 2.5 and 8 cents; from Boston, between 3 and 6.5 cents; from Philadelphia, between 4.7 and 6 cents; from Baltimore, between 4.8 and 9.1 cents; from New Orleans, between 5.2 and 11.4 cents; to Cork f. o. from San Francisco between 14.8 and 25.1 cents. The average rate from Buenos Aires was about 9½ cents; from the Atlantic ports of the United States, about 5½ cents; from New Orleans, about 8 cents; from San Francisco, about 20 cents. The rates from Buenos Aires to Europe were then about 4 cents per bushel higher than those from the Atlantic seaports of the United States; about 1½ cents higher than those from New Orleans, and about 10½ cents lower than those from San Francisco.

It has been estimated before that if 7 cents is considered as the average rate from the local station in the United States to the primary market, this would be equal to the rate from the local station in Argentina to the ocean. It is therefore interesting to compare the rates from the primary market in the United States to England with those from Buenos Aires to the United Kingdom, By adding the above found rates to the ocean rates

of the last table, the average rates per bushel of wheat would be about the following:

Chicago–New York–Liverpool, all water (1895–1901), 10½ cents;[1] St. Louis–New Orleans–Liverpool, all water (1895–1901), 12½ cents; Chicago–New York–Liverpool, by lake, rail, and ocean (1895–1901), 12 cents;[2] Chicago–Boston–Liverpool, by lake, rail, and ocean (1894–96), 13½ cents; and by rail and ocean, Chicago–New York–Liverpool (1895–1901), 16½ cents;[3] Chicago–Boston–Liverpool (1894–96), 17 cents; Chicago–Philadelphia–Liverpool (1894–96), 16 cents; Chicago–Baltimore–Liverpool (1894–1900), 16 cents;[4] St. Louis–New York–Liverpool (1895–1901), 18½ cents.

All these rates,[5] varying between 10½ and 13½ cents for part-lake transportation and between 16 and 18½ cents for all-rail, are higher than the Buenos Aires rate to England (1894–98)

[1] All rates from Duluth by lake (1895–1901) about ½ cent higher than from Chicago.

[2] 1894–96, 12 cents. [3] 1894–96, 17½ cents. [4] 1894–96, 15½ cents.

[5] The published average through freight rates to Liverpool per bushel of wheat in the last decade were as follows:

Years.	From St. Louis.		From Chicago to Seaboard by All-Rail.
	Via New Orleans by Water.	Via New York by Rail.	
1892	14	21	19.72
1893	14.71	21.72	20.46
1894	11.69	18.71	19.50
1895	12.13	18.33	19.20
1896	13.50	19.67½	20.10
1897	12.89	20.33	20.16
1898	14.24	20.32	20 61
1899	12.33	17.88	17.83
1900	14.64	18.41	17.69
1901	9.48	14.03	12.88

Cf. Statistical Abstract of the United States, 1901, p. 403. The rates from Chicago are given there in 100 pounds. Here they have been expressed in bushels of 60 pounds. The rates from Chicago are somewhat higher than those given in the above text. The reason for this is probably that the railway rates used in the text are those given by the New York Produce Exchange, while these through rates are published by the Chicago Board of Trade; and, furthermore, that the latter include the elevator charges at New York, amounting to about 1¼ cents per bushel (*cf. Forty-second Annual Report of the Chicago Board of Trade*, p. 118).

of 8 cents and the Buenos Aires rate to German ports (1894–1900) of 9½ cents. Even if ample allowance is made for the rebates accorded for the railway transportation of the wheat from the primary market to the seaboard, the freight rates on wheat from those markets to Europe over any route, and also if entirely carried by water, will have been higher than from Buenos Aires to Europe.

The freight rate on wheat from the local station to the ocean had been estimated for Argentina at 7 cents, for the Pacific coast region at 10⅓ cents, for the wheat territory east of the Rocky Mountains at about 14 or 15 cents per bushel. If to these rates the different average ocean rates are added, the total freight rate per bushel of wheat to the English market would be from Argentina about 16 cents, and in the United States for the wheat shipped over the Atlantic ports about 20 cents; over the gulf ports, about 22 or 23 cents; over the Pacific ports, about 30 cents.

The conclusions which might be drawn from the preceding study may be summarized as follows: It seems that the cost of hauling the wheat from the farm to the local station is considerably lower in Argentina than in the United States; that the cost of transporting the wheat from the local station to the shipping port is lower in Argentina than in the Pacific coast region of the United States, while it will be about as high as that of transporting the wheat grown east of the Rocky Mountains on a local rate to the primary market; that the ocean rates from Argentina are considerably lower than those from the Pacific coast region, and that therefore the cost of transportation from the local station in Argentina to Europe is considerably lower than from the local station in the Pacific coast region to Europe; that while the ocean rates from Argentina are higher than from the Atlantic and gulf seaports, the difference is by far not so large as the freight rate from the primary market to the ocean in the United States; that as a consequence hereof, even if account is taken of rebates and of the existence of through rates from local stations to the ocean, the transportation from the local station in Argen-

tina to the European market is likewise lower than from the local station east of the Rocky Mountains to Europe, and that consequently the average rate for transporting the wheat from the Argentine farm to the European market is lower than from the farm in the United States.

ROBERT RENÉ KUCZYNSKI.

WASHINGTON, D. C.

AMERICAN AND GERMAN HIGH-SPEED TRAINS.

DURING recent years the newspapers and periodicals of Europe and America have contained numerous articles on the great speed at which French, but more especially American, express trains run. These articles, often containing exaggerated statements of the speed attained, have produced in Germany not a little unfavorable criticism of the management of the state railways for its failure to keep abreast of the best performances in train movement. To counteract the evil done by these adverse comments and to rehabilitate German railways in Germany, two contributions have recently appeared in the *Archiv für Eisenbahnwesen*, an official publication of the Prussian Ministry of Public Works.

The author, in the earlier of these articles,[1] while conceding that there are faster trains in both France and Great Britain than in Germany, nevertheless holds that on the whole the passenger train service of Germany averages better in point of speed than that of either of the other countries just named. The later article[2] is an intemperate attack on American railways and an impatient criticism of those who believe statements of train speed coming from America ("the classical land of exaggeration") that have not been fully vouched for. It contains a comparison favorable to German railways, as the earlier article did; this one showing that, notwithstanding there are several faster trains in the United States than any in Germany, yet on the whole the service in the latter country is more expeditious than in the former.

Whether or not the comparison instituted in the first article, of the speed of express trains in Great Britain and in the various

[1] "Die Fahrgeschwindigkeit der Schnellzüge auf den Haupteisenbahnen in Europa," W. SCHULZE, *Archiv für Eisenbahnwesen*, 1901, p. 124, *et seq.*

[2] "Die Fahrgeschwindigeit der amerikanischen Eisenbahnen," W. A. SCHULZE, *Ibid.*, 1901, p. 782, *et seq.*

countries of Europe is a fair one will not be considered, for the data necessary to review satisfactorily the statements made are not at hand. But the second article I have no hesitation in pronouncing unfair and grossly inaccurate. The original plaint of its author is that, in Europe, not only the populace but also those who by reason of their technical training should know better, accept statements without sufficient proof that in America trains often run at a speed per hour of 120 kilometers (75 miles) and over, yes even 193 kilometers (120 miles), and that from these statements unfair conclusions are drawn. All this is not without basis, and, had Mr. Schulze been content dispassionately to correct these exaggerated statements, so as to make a fair comparison with the railways of his own country, no one would be disposed to find fault. But he goes much farther. He attempts to discredit American railways where no disparaging comment is justified, and makes unfavorable comparisons on an incomplete examination and presentation of the facts, and he even goes out of his way to belittle American locomotives and their builders.

Mr. Schulze's article, as has already been stated, is not a direct and straightforward examination of the reports of speed said to have been attained in America. Before any specific statements of speed are taken up a large amount of inaccurate and immaterial matter, accompanied by much invidious comment, is introduced, all of which is designed to prejudice the reader against American railways so that he will be reluctant to believe anything favorable of them, and will be in a receptive mood for any comment of an adverse nature, and thus be little inclined to scrutinize any statement Mr. Schulze himself may submit. As this introductory matter, although of the greater importance, is quite beside the mark, its examination will be deferred until that part of the discussion which is directed to the point at issue has been examined. After this has been taken up, the matter passed over will be considered, for much of the material presented is so misleading that it cannot be ignored. And finally, the examination of Mr. Schulze's matter having been completed, some

tables showing American and German train-speeds and frequency of service will be submitted.

In outlining his discussion the author says, "to confirm his adverse criticisms and to show that many of the statements of very high speeds on American railways rest solely on misconceptions or on errors in computation, some convincing proof will be submitted near the end of his dissertation;" and, on introducing this proof he declares, "it now only remains to be shown by a few examples, how these incorrect statements of extraordinary speed upon American railways originate and the manner in which they are disseminated by foreign and domestic papers."[1]

The first to receive his attention are the mail trains between New York and San Francisco, about which he says:

> On the first of January, 1899, the speed of the fast mail trains between New York and San Francisco was materially increased, the particulars of the journey of the first train from New York through Buffalo, Chicago, Omaha, Ogden, and Sacramento to San Francisco were set forth in the *Railroad Gazette* of New York for the sixth of January, 1899, and the *Engineer* of London for the tenth February and the twenty-second March, 1899 — briefly in the former journal, but at considerable length in the latter. It is stated in these reports that this train, which was composed of six mail cars and a baggage car, consumed, deducting time lost in stops, only 96 hours in the whole journey to San Francisco; and, as the total distance was 3,408 miles (5,487 kilometers), the train ran at an average speed of 35.5 miles (57.1 kilometers) per hour. According to the *Engineer* the highest speed reached upon different stretches was 60 to 75 miles (96 to 120 kilometers) per hour, while, according to the *Gazette*, upon the return journey of this train one or more miles were traversed in 35 seconds each on the Chicago & North-Western railway, over a straight and level 15 miles stretch of track between the stations of Arion and Arcadia, in Iowa. That this last statement expresses the truth, is very much to be doubted, not only because the *Engineer*, in its detailed account, makes no mention of it, but also because the attainment of a speed of a mile in 35 seconds, almost 165.5 kilometers per hour, appears hardly credible. This piece of track lies between the larger stations of Missouri Valley, Denison, and Carroll. The distance between Missouri Valley and Denison is 43.4 miles (70 kilometers), and that between Denison and Carroll 28 miles (45 kilometers), and they are traversed by the fastest train scheduled in the

[1] Pp. 782, 797.

Official Guide of August, 1900, namely, the "Overland Limited Express," in 65 and 45 minutes respectively; that is, with a speed of only 64.6 kilometers from Missouri Valley to Denison, and with a speed of only 60 kilometers per hour between Denison and Carroll. It is therefore hardly thinkable that a mail train whose average speed for the whole distance between San Francisco and Chicago only equals that of the "Overland Limited Express," could, on a portion of the way, reach a speed 150 per cent. higher. And the accuracy of the report is the more to be questioned, because the *Railroad Gazette* submits its statement in indefinite form and says nothing of the way this unheard-of speed was ascertained and what, if any, precautions were taken to insure accurate results.[1]

Having shown to his own satisfaction that the great speed attributed to the fast mail train was never actually attained, Mr. Schulze directs his attention to the statement of more moderate speed said to have been developed. He declares that it appears equally incredible "that the so-called fast mail train on its journey to San Francisco could have attained a speed of 60 to 75 miles per hour (96 to 120 kilometers), as stated by the *Engineer*, because the time consumed in covering numerous portions of the journey is given, but over none of the divisions is a speed reached of 120 kilometers per hour."[2]

In introducing his last example, Mr. Schulze says:

In conclusion it still remains to be mentioned that the *Railroad Gazette* of March 22, 1901, in an article bearing the heading "120 miles an hour," reported that a mail train on the Savannah, Florida & Western railway composed of a locomotive, a mail, a baggage, and a sleeping car, on the first of March ran from Fleming to Jacksonville (149 miles) in 130 minutes, inclusive of one stop and two slow-downs, or with an average speed of 68.8 miles (110.76 kilometers) per hour. And it was further reported that near the station of Screven the stretch between the 69th and 74th mile posts was run in but 2½ minutes, that is, at a speed of 120 miles (193.2 kilometers) per hour. Because stop-watches were not used and because the time of passing each mile post was not given, the *Railroad Gazette* did not feel sure that its statements would be unreservedly accepted; but in spite of this the *Gazette* finally accepted this statement of speed as accurate [which is hardly true] because the running time taken by the traveling engineer who was on the locomotive corresponded exactly with that reported by the train dispatcher. These, even in America, unheard-of high-speed figures will for the present find no believers among us, because, according to the *Official Guide* of January, 1901,

[1] Pp. 797, 798. [2] P. 798.

the fastest train then on the railway line between Savannah and Jacksonville through Fleming (172 miles or 277 kilometers) attained an average speed of only 65.2 kilometers in one direction and 66.5 kilometers in the other, and these trains travel over the stretch of track from Jesup through Screven to Blackshear (30 miles, or 48.3 kilometers) in 42 minutes, that is, with only a speed of 69 kilometers per hour. Accordingly the mail train, on its spurt between the 69th and 74th mile posts, would have had to exceed the speed regularly attained over this track by 180 per cent. in order to reach the speed reported. In addition, the question also arises, whether it is practicable to ascertain accurately the running time over a short stretch of five miles without speed recorders. Professional testimony seems to bring this question within the bounds of propriety. In his recent work, *The Present Express Train Service* (p. 73), Camille Barbey, director of the Yverdon St. Croix railway, says: "Speed recorders are used generally only in Switzerland, where today, without exception, each locomotive is supplied with one; it is worth while wishing that their use would become general, for this would put an end to the fantastic reports of speed, running from 160 to 180 kilometers per hour, that from time to time appear in American periodicals."[1]

This example completes the evidence introduced by Mr. Schulze in support of his adverse criticisms, and in proof of his assertion that reports of very high speeds coming from America rest solely on misconceptions or on errors in computation. Whatever may be thought by others of the case made out, Mr. Schulze apparently feels that he has fully substantiated his charges. For in the concluding paragraph of his article he says:

> The examples that have been introduced sufficiently prove, as was asserted in my introduction, that the trustworthiness of all reports of speed emanating from America must first be ascertained before conclusions can be drawn as to what train speeds are possible of attainment. And this is especially true of all statements of trains dispatched at the high speed of 120 up to 160 kilometers per hour, where it is not particularly stated upon what portion of the railway the run took place, and what was the length of the trip, what was the time of departure and of arrival, and what were the number and kind of the cars, and also what guaranty there is that all the computations were correctly made, and that they were not, perchance, based entirely upon conjectural estimates or statements of the train officers or interested builders of express locomotives.[2]

I do not feel that Mr. Schulze by his criticisms has seriously impaired the standing of any of the foregoing reports of speed,

[1] Pp. 800, 801. [2] P. 801.

for the simple reason that I do not regard the speed of regular trains as a satisfactory guide to the speed attained in emergencies, and no other evidence of any weight is introduced. Yet, as I have more than once indicated, I have nothing to say in defense of the extreme records quoted by him.

I freely confess that I am also exceedingly skeptical as to their accuracy. I would not accept any statement of speed in excess of 85 miles per hour over level track, unless it was satisfactorily vouched for. And moreover, I do not believe a speed of 120 miles an hour can be attained with any locomotive now in existence except on a steep down grade, down an incline so steep in fact that the grade would supersede the power of the locomotive as the controlling factor.

Having made these admissions, the way is clear for the examination of the statements of more moderate speed and the introduction of evidence of a positive nature. Mr. Schulze says that "it appears equally incredible that the so-called fast mail train on its journey to San Francisco could have attained a speed of 60 to 75 miles per hour (96 to 120 kilometers), as stated by the *Engineer*, because the time consumed in covering numerous portions of the journey is given, but over none of the divisions is a speed reached of 120 kilometers." This statement greatly underrates the attainments of trains in America. It is conceded that a speed of 75 miles an hour is not shown over any of the divisions given in the tables of the articles quoted, but none of these divisions over the railways where the fast running was done, where the track would permit this speed, is of moderate length; and then, too, the records shown include the time consumed in getting under way and in coming to a stop. It is of course well known in this country that the fast running was done between Chicago and Council Bluffs, by the Chicago & North-Western and the Chicago, Burlington & Quincy railways, which were competitors for the mail traffic.

While neither of the railways which took part in this memorable contest kept such records of the speed attained as can be regarded as satisfactory, there can be no doubt that a speed of 75 miles per hour was often materially exceeded.

During the summer of 1900 Mr. F. A. Delano, superintendent of motive power of the Chicago, Burlington & Quincy railroad, made some tests to ascertain the extra cost of running trains at high speed. A dynamometer car was placed in the fast mail train on three of its journeys from Chicago to Burlington. On two of these journeys a speed in excess of 75 miles an hour was attained, and there was no special attempt made to obtain a record. On the second journey three successive miles were run at a speed in excess of 75 miles per hour, one being run at the rate of 79, another at 78, and another at 77.5 miles. On the third journey five miles were run at a speed of 75 or more miles an hour, the three miles over which the record was made on the preceding trip again being covered at a speed in excess of 75 miles per hour, or at 77.5, 77.5, and 77 miles respectively. These records were made between Mendota and Buda, with engine No. 1590, of the Columbia type. This engine has 18 by 26 inch cylinders, 200 pounds steam pressure, 84¼-inch drivers, and a weight on the drivers of 84,450 pounds. The train consisted of the dynamometer car and four cars loaded with mail, the total weight behind the engine tender being 376,400 pounds, or 188.2 tons.[1]

During April and May of the present year (1902) some tests were made on the Chicago & North-Western railway to ascertain the speed between stations of their fast mail trains running between Chicago and Council Bluffs. The tests were made by Mr. Robert Quayle, the superintendent of motive power, who was assisted by Mr. Percy H. Batten and Mr. Horace H. Newsom, both of whom have had considerable experience in taking records. The speed recorder used was carefully adjusted and tested in the shops, and, after being placed on the engines, was checked with a stop-watch over stretches of track that had previously been carefully measured. On many occasions a speed of 75 or more miles an hour was recorded, and on one trip a speed of 82, on another a speed of 86, and on another a speed of 89

[1] The details of these tests are fully set forth in the *Report of the Proceedings of the Thirty fourth Annual Convention of the American Railway Master Mechanics' Association*, pp. 130–135, and accompanying charts and tables.

miles per hour was attained and held for a short distance. On April 28 train No. 10, between Carroll and Boone, in Iowa, ran six miles, five of which were consecutive, at a speed of 76 or more miles an hour, and for one-half of a mile maintained a speed of 82 miles per hour. The speed over the five-mile stretch was as follows for the successive miles: 76, 78, 81.5 (.5 of this mile being at 82), 78 and 76. On May 1 the record of April 28 was surpassed, 10.5 miles, 7.5 of which were consecutive, being run at a speed of 75 or more miles per hour. On this run a speed of 86 miles per hour was attained, but was held only for a very short distance, scarcely one-quarter of a mile. The speed over the 7.5 mile stretch was at the rate of the following miles per hour for the successive miles or parts thereof, 75 (for .5 of a mile), 77, 78, 81, 84 (for 1.3 miles), 86 (for almost .25 of a mile), 83 (for .5 of a mile), 80, and 77.5. On May 10 the record of May 1 was surpassed by train number 9. Of the 202 miles between Clinton and Boone, 82.5 were covered at a speed exceeding 70 miles per hour, 13.5 at a speed exceeding 80 miles per hour and 4 miles at a speed exceeding 85 miles per hour, a speed of 89 miles per hour being reached and held for about one-fourth of a mile between the stations of Mt. Vernon and Cedar Rapids.

These runs were made with four cars, by class C Schnectady engines Nos. 218, 219 and 220, which have 19 by 26 inch cylinders, 80-inch driving wheels, and a steam pressure of 190 pounds. The weight on the driving wheels, these engines being of about equal weight, is 85,700 pounds, and that on the trucks 48,100 pounds, the total weight of each being approximately 133,800 pounds.[1]

As none of the records just introduced had been made public at the time Mr. Schulze wrote, he can, of course, not be censured for not knowing about them. But there was a record, fully vouched for, of some years' standing, which had been given great

[1] These data were furnished by Mr. Robert Quayle, superintendent of motive power of the Chicago & North-Western railway, the tracings of the speed recorder being sent to me for examination.

publicity. that he should have known of, and about which he would have been told had he made any inquiries in this country. It may be remarked that Schulze made no attempt whatever to secure information from original sources, but was quite content to call attention to small inaccuracies, or alleged inaccuracies, in newspaper reports, and to set the speed of regular trains over against the statements he wished to discredit. The run to which I refer is the well known one of 510.1 miles made by the special train of Dr. W. Seward Webb over the Lake Shore & Michigan Southern railway on October 24, 1895. Elaborate preparations were made for taking the time of this run, as it was undertaken in the hope of setting a new world's record for long-distance running. The official time-keepers were Messrs. H. P. Robinson and Willard A. Smith — the former being the editor of the *Railway Age*, and the latter sometime chief of the transportation department at the Chicago World's Fair. The train was under the immediate charge of the general superintendent of the Lake Shore, Mr. Canniff. One of the timekeepers, taking two stop-watches in his hand, started the split second hands of both with one movement of his hand, and then to one or the other of these timepieces all the other watches on the train were set. The timekeepers had agreed to relieve each other at the stop at the end of each division, one being always on duty, and the other close at hand to verify any record on which a question might arise. The timekeeper on duty sat at one of the tables, watch in hand, and opposite to him was a representative of the railway company, with no power to originate a record, but to check each stop in case an error should be made. Across the aisle sat the official recorder and a representative of the Wagner Palace Car Co., and opposite to him a representative of the daily press.

There was fast running just before Cleveland was reached, where seven miles were covered at the rate of 83.4 miles per hour, and again between Swanville and Dock Junction, where 6.2 miles were made at a speed of 84.54 miles an hour. The best running, however, was made on the last division, eight miles

being covered at the rate of 85.44 miles per hour. The most noteworthy records made on this run were as follows:

A distance of			510.1	miles	at	65.07	miles	an	hour.
"	"	"	289.3	"	"	66.68	"	"	"
"	"	"	181.5	"	"	69.67	"	"	"
"	"	"	85	"	"	72.92	"	"	"
"	"	"	71	"	"	75.06	"	"	"
"	"	"	59	"	"	76.08	"	"	"
"	"	"	52	"	"	78.00	"	"	"
"	"	"	42	"	"	79.04	"	"	"
"	"	"	33	"	"	80.07	"	"	"
"	"	"	8	"	"	85.44	"	"	"

The train was composed of two heavy Wagner parlor cars, each weighing 92,500 pounds, and Dr. Webb's private car Elsmere, which alone weighs 119,500 pounds. All the engines used in this relay race were built by the Brooks Locomotive Works, after designs furnished by Mr. George W. Stevens, of the Lake Shore railway. The first four engines, which drew the train as far as Erie, were of the American type, or eight wheelers, comparatively light, but built for fast running. These engines weighed only 52 tons, had 17 by 24 inch cylinders, and 72-inch driving wheels. The last engine was of a different type, being a ten-wheeler, with three pairs of coupled drivers and a four-wheeled swiveling truck. It weighed 56.5 tons, its cylinders being of the same size as those of the other engines. Its driving wheels were only 68 inches in diameter.[1]

I believe it has now been shown, by what must be regarded as satisfactory evidence, that, while Mr. Schulze has not gone quite so far in belittling the achievements of American railways as the newspaper reporters have gone in exaggerating them, yet he has placed far too low an estimate on their performances. But possibly he should not be censured for this; for, of course, what one sets as the limit of possible achievement is largely determined by what one is accustomed to. And, this being true, it

[1] This statement was prepared from material furnished by Mr. W. C. Brown, vice-president and general manager of the Lake Shore railway, and from the description of this run by Mr. H. P. Robinson, one of the official timekeepers, as given in *McClure's Magazine* for February, 1896.

would follow that, in a country where 80.9 kilometers per hour represents the average speed of the fastest regular train, the highest speed attainable under most favorable conditions would be fixed very much lower than in a country where there are regular trains having an average speed of 107.6 kilometers per hour.

It was explained, in the introductory paragraphs of this article, that Mr. Schulze made an extended excursion before beginning the discussion of his main thesis. And it was stated that the ground covered by him in this digression would be examined after the points directly at issue had been discussed. This may now be done.

Near the beginning of his article Mr. Schulze submitted a long table purporting to give a list of the fastest trains in America. This table and the comparison based upon it form the most important parts of his article, and will therefore be commented upon at some length. In introducing it Mr. Schulze says:

> As it may be of interest I shall submit a table, carefully compiled from official sources,[1] showing the highest speed at which American trains are actually and regularly run, so that the speed of American trains can be correctly valuated, and to show also how far, in point of speed, they fall behind the unfounded statements that have been published.[2]

From this explanation it would be inferred that the table was introduced for two purposes — to furnish the data necessary to form a correct judgment of the speed attained by American trains, and to show that the speeds actually and regularly attained fall far short of the published statements. But the table was also used for another purpose, and one to which, by reason of the peculiar manner of its compilation it did not lend itself, viz., a comparison of the speed of American and German express trains.

[1] The only source of information drawn upon was the *Official Guide of the Railways and Steam Navigation Lines of the United States, Porto Rico, Canada, Mexico, and Cuba*, for August, 1900, which is published by the National Railway Publication Company, of New York, as a commercial venture. This document is not an official publication of the railway companies, and no information was obtained directly from official sources, as might be inferred from the above statement.

[2] *Archiv für Eisenbahnwesen*, 1901, pp. 781–782.

The purposes for which the author declared the table was introduced and the additional use made of it having been stated, we may examine the table and the discussion which follows its presentation. At the outset, for the sake of clearness, attention will be directed simply to the statements contained in the table to learn whether they are what they purport to be; in other words, the table will be examined merely as a statement of facts. After this has been done the shortcomings of the comparison instituted between American and German express trains will be set forth. The remaining point, the speed of regular trains as a criterion of that of special trains, having already been passed upon, need not be taken up again.

As it was impossible, Mr. Schulze says, to compute the speed of all trains because of the great mileage of American railways, he examined the trains on only the most important railways. More specifically he confined his investigations, as he says, to the ascertainment of the fastest train in either direction on the shortest of the main lines between the largest nine cities of the United States; namely, New York, Chicago, Philadelphia, Baltimore, Boston, Buffalo, Cleveland, Pittsburg, and St. Louis; the fastest trains between these cities and the federal capital; the fastest trains between Chicago and San Francisco, and between Philadelphia and Atlantic City. To obtain the running-time of the trains the time lost in stops at intermediate stations was deducted from the journey-time, and in all cases where the schedule gave merely the time of arrival at an intermediate station, or merely the time of departure, one minute was allowed for the stop, and one minute was also allowed where the schedule gave the same time for arrival and departure.[1]

As has just been stated, Mr. Schulze said, he would present only the fastest trains on the best railways between a list of selected cities. As a matter of fact, however, he does not adhere to or succeed in fulfilling his promises. The train introduced may not be the fastest, the railway selected may be only medi-

[1] P. 783. By journey-time is meant the whole time consumed by a train in making a journey.

ocre, and the route chosen may be so roundabout that no one desirous of making an expeditious journey would take it. An exhaustive review of Mr. Schulze's table, so as to point out all its defects, will not be undertaken here. Only enough evidence will be submitted to show that it has serious defects.

It is promised that the fastest train on each of the selected railways would be ascertained and then given a place in the table. But unfortunately for American railways Mr. Schulze has not always succeeded in finding the fastest train. On page 783 of his article Mr. Schulze explains that he compiled his table from the data contained in the August number of the *Official Guide of the Railways and Steam Navigation Lines of the United States* for the year 1900.[1] Many of the fastest trains, as is well known by those familiar with the contents of the *Official Guide*, are not scheduled in this document. These of course were overlooked by Mr. Schulze. Nearly all of the railways running out of our large cities have one or more mail trains that are run at much higher speed than the trains carrying passengers, which alone are found in the *Official Guide*. The Chicago & North-Western railway, for example, has three mail trains between Chicago and the union station in Council Bluffs, whose speed, as will be seen from the subjoined table, very materially exceeds that of its fastest passenger train, the "Overland Limited," which alone is mentioned in Mr. Schulze's table.

HIGH-SPEED TRAINS OF THE NORTH-WESTERN RAILWAY.[2]

Train.	Distance Between Chicago and Council Bluffs.		Average Speed While Under Way.	
	Kilometers.	Miles.	Kilometers per Hour.	Miles per Hour.
Fast Mail No. 9.....	788.7	489.9	80.3	49.9
Fast Mail No. 10.....	788.7	489.9	76.0	47.2
Fast Mail No. 15.....	788.7	489.9	72.2	44.9
Overland Limited.....	788.7	489.9	60.7	37.7

[1] Any comments I may make upon the accuracy of the contents of this table will of course be based upon the same source of information so far as it covers the points discussed.

[2] The speed of the "Overland Limited" is that given by Mr. Schulze.

In a measure Mr. Schulze is excusable for not discovering the trains just discussed. But his failure at times to find the fastest train scheduled in the *Official Guide* cannot be so readily condoned, especially as Mr. Schulze lays great stress upon the importance of absolute accuracy, and is unsparing in his condemnation of those who do not attain it. The first trains in Mr. Schulze's table are those running between New York and Boston, the third in the list is one between these cities by the way of Albany. On its return journey this train is credited with an average running-speed of but 62.5 kilometers per hour. I find that train No. 15 on the Boston & Albany railway, in conjunction with train No. 50 on the New York Central, at the time of Mr. Schulze's investigations, made this journey of 555.4 kilometers (deducting time lost while standing at stations)[1] in 8 hours and 19 minutes, or at an average speed of 66.8 kilometers per hour. No. 23 of the table is a train between Chicago and Cleveland by the way of Cincinnati, and the speed of this, assumed to be the fastest train between these cities, is given as 60.9 kilometers per hour. Train No. 18, out of Chicago on the Cleveland, Cincinnati, Chicago & St. Louis railway,[2] together with train No. 46, out of Cincinnati on the same railway, made this journey of 915.6 kilometers (deducting the time lost at stations) in 13 hours and 45 minutes, that is, at an average speed of 66.6 kilometers per hour, or at an average speed 5.7 kilometers higher than is stated in the table. No. 33 of the table is a train between Philadelphia and Buffalo via Manunka Chunk, and the speed of this, supposedly the fastest train between these two cities, is given as 69.9 kilometers per hour. Train No. 311 on the Philadelphia & Reading railway, in conjunction with train No. 9 on the Lehigh Valley railway at the same date, made the journey between these two cities of 670 kilometers (deducting time lost at stations) in 8 hours and 53 minutes, or at an average speed of 75.4 kilometers per hour, a speed 5 kilometers in excess of that

[1] In the matter of deducting time, when it is not otherwise explicitly stated, I have followed Mr. Schulze's method, which was explained on p. 372.

[2] Popularly known as the "Big Four."

maintained by the train given a place in the table by Mr. Schulze. No. 35 of the table represents a train between Buffalo and Pittsburg by the way of Bradford, and the speed of this, supposedly the fastest train between these two cities, is given as 53 kilometers per hour. The route selected by Mr. Schulze is one of the longest, if not the longest, of the lines connecting these two cities, and the train selected, although the fastest over this (indirect) route, is not so fast as the best train on several of the other more direct lines. Train No. 11, out of Buffalo on the Lake Shore & Michigan Southern railway, and train No. 211, out of Ashtabula over the same railway, together with train No. 18, out of Youngstown on the Pittsburg & Lake Erie railway, together making a through train, made the 418.6-kilometer journey between Buffalo and Pittsburg (deducting time lost at stations) in 6 hours and 45 minutes, that is, at an average speed of 62 kilometers per hour, or at an average of 9 kilometers more per hour than is stated in the table. It would require much less time to go by the roundabout way of Cleveland and Youngstown over the Lake Shore & Michigan Southern, the Erie, and the Pittsburg & Lake Erie railways, than by the route selected by Mr. Schulze. These examples show that Mr. Schulze's table has serious defects, and that his results cannot be accepted without verification.

It has now been seen in what measure the promise to introduce only the fastest trains is fulfilled. Let us see if greater success is attained by Mr. Schulze in the selection of railways; for it will be remembered that the author professes that only the fastest trains on the best railways are given a place in the table. The second group of Mr. Schulze's table, numbers 4 to 8 inclusive, comprises the trains between New York and Buffalo. The following railways are represented: New York Central & Hudson River railroad, with a train having an average speed for the whole journey of 87.2 kilometers per hour; Lehigh Valley railroad, with a train having an average speed of 76.5 kilometers per hour; Delaware, Lackawanna & Western railroad, with a train having an average speed of 70.1 kilometers per hour; West

Shore railroad, with a train having an average speed of 65.5 kilometers per hour; and finally the Erie railroad, with a train having an average speed of 65 kilometers per hour. It would be needless, even if the speed of the trains on the respective railways had not been given, to explain to American readers that these railways are not of the same rank, and this fact should have been realized by Mr. Schulze after his computations were made. Instead of including only the best railways he has introduced all the railways between New York and Buffalo, except the Pennsylvania, whose line is exceedingly roundabout. This point may not at present appear to be of much significance, but it is really of great weight, as will be seen later, where the average speed of the fastest trains on what are said to be the best railways of America is compared with the average speed of the fastest trains in Germany. In such a comparison, of course, the trains selected to typify the different countries becomes a matter of the first importance, but this is anticipating my argument. No more illustrations will be introduced to show how unfortunate Mr. Schulze's selections were; but it is not to be inferred from this fact that in all other cases only the best railways are given a place in his table; such, in fact, is not the case, as could readily be shown were it worth while.

It was not only stipulated that only the fastest trains on the best railways would be included in the table, but also that only the fastest trains on the best railways having the most direct routes would be found there. If the last qualification were rigidly adhered to, some of the fastest trains would be excluded, for the fastest trains are often found on the longer lines. The trains of the best railways running between any two large cities usually make the journey, by agreement, in the same or about the same time, regardless of the distance that must be traveled; witness the limited trains between Chicago and New York on the Lake Shore & Michigan Southern, and New York Central & Hudson River railways on the one hand, and the Pittsburg, Fort Wayne & Chicago, and the Pennsylvania railways on the other hand. But here again Mr. Schulze did not live up to his profes-

sions. He did not confine himself to the fastest trains on the most direct routes, and did not omit any specially fast train because it ran in a roundabout way. But he did include several trains whose routes were very indirect and whose average speed was relatively very low. For example, who, if he were in haste, would think of going to Boston from New York by the way of Albany, or who would go to Cleveland from Chicago by the way of Akron? The latter journey, on the train cited by Mr. Schulze, would involve changing cars at Chicago Junction, Ohio, a journey from there on a local train to Akron which makes seventeen stops in the short distance of 74.5 miles, or one every 4.4 miles, and a journey on a slow train from Akron to Cleveland. These errors and those cited in the preceding paragraphs show that Mr. Schulze's table contains many very serious imperfections and omissions.

Although the inaccuracies already pointed out quite destroy the value of the table, there yet remain a number of further errors of such importance as to call for comment. Those that have just been discussed were due, it may be said, to a lack of care, while the further faults that must receive attention may be attributed to a want of knowledge of conditions existing in America. Mr. Schulze's table contains many trains which either begin or end their journey in New York city. Of the 42 trains found in the table, 18 start from New York city, and of these 5 leave over the New York Central & Hudson River and the New York, New Haven & Hartford railways, and therefore really start from New York city. The remaining 13 trains do not start from New York city, but from the New Jersey shore, the passengers crossing the Hudson river on ferryboats. Now, the schedule time of departure from New York city is the hour the ferryboat leaves, and it is hardly fair to charge this time to the train which is waiting on the other side of the river. It seems the more unfair to do this because the distance across the river is generally not added to the mileage actually run by the train.[1] To all trains this addition of from 13 to 15 minutes to

[1] This fact should have been a sufficient hint to Mr. Schulze that he would err if he took the New York city time as the time the train departed.

their running time is a matter of some importance, and to the short distance trains is a matter of great moment. For example, train No. 85 for Philadelphia, on the Pennsylvania railroad, is scheduled to leave Desbrosses street, and Cortland street also, at 4 P. M., but, as a matter of fact, the ferryboats leave at 4 o'clock, the train starting from Jersey City at 4:13 P. M. Here, then, is an error of 13 minutes in the time of the departure of this train, and, as the run is a short one, the speed of this train consequently is very materially understated. Mr. Schulze, allowing 3 minutes for three stops, reports that it runs at an average speed of 75.4 kilometers per hour, while it really runs, allowing 2 minutes for two stops, at an average speed of 82.6 kilometers per hour. This example is sufficiently convincing, especially when it is remembered that 13 of the 42 trains altogether cited by Mr. Schulze are affected by this error at New York alone, and that there are others affected by a like error at Philadelphia, Detroit, and San Francisco. It shows how the value of Mr. Schulze's table is impaired by his lack of knowledge in this one respect.

One comment on the table yet remains to be made. Where the *Official Guide* merely gave the time of arrival at or merely the time of departure from intermediate stations, and in all cases where the train was scheduled to depart the same instant it was scheduled to arrive, Mr. Schulze allowed one minute for the stop. In Europe this allowance may be sufficient, but it is not so here. For example, according to the table, the "Overland Limited" of the Chicago & North-Western railway, loses but 25 minutes in stops between Chicago and Omaha, while in point of fact it loses 96 minutes. There are 25 stops, instead of 17, as shown in the table. A number of the stops which were assumed to be but one minute each in length actually lasted several minutes. For example, there is a stop of 5 minutes at Clinton, and one of 6 minutes at Cedar Rapids, for which together only 2 minutes were allowed. According to the *Official Guide* 35 minutes are consumed in going from Council Bluffs to Omaha, a distance of only three miles; but, as a matter of fact, all but 12

of these 35 minutes are lost at Council Bluffs and the Union Pacific transfer, 12 minutes being an abundance of time to run the three miles. At these four stops a total of 30 minutes is lost, over what Mr. Schulze allowed. The long delay at the Union Pacific transfer is due to the fact that the train is here made ready for the initial portion of its journey across the plains.[1] If 96 minutes, the actual time lost in stops, be deducted instead of 25 minutes, the time allowed by Mr. Schulze, the average speed of the "Overland Limited" between Chicago and Omaha will become 66.6 kilometers per hour, instead of 60.7 kilometers, as given by Mr. Schulze. This difference of 5 kilometers shows that the rule of rough approximation adopted produces variations from the true figures so wide that the results obtained cannot be accepted.

We may now turn from this examination of the table, undertaken to ascertain if it was compiled in conformity with the author's stipulations, to the comparison instituted between German and American express trains.

> A comparison [Mr. Schulze says] of the table just discussed, showing American express-train speeds, with the table appearing on page 124 *et. seq.* of the *Archiv für Eisenbahnwesen* for 1901, giving the average speed of the express trains of Germany, will show, if the fast trains between Philadelphia and Atlantic City, which are run under special conditions, be dropped out of consideration, not only that equally high average speeds are reached, but even higher averages are attained than in America.

According to these tables an average, Mr. Schulze says, in excess of 65 kilometers per hour is attained by only 26 trains in America, while this speed is attained or exceeded by 36 trains in Germany.[2]

For many reasons, some of which have already been indicated, the comparison here instituted by Mr. Schulze is of very slight value, if any. First of all it should be understood that it is really not a comparison of the average train speed of America with that of Germany, for the average of neither country has

[1] These facts were furnished by Mr. R. H. Aishton, general superintendent of the Chicago & North-Western railway.

[2] *Archiv für Eisenbahnwesen*, 1901, p. 796.

been computed. The table for America contains but 42 trains and that for Germany but 46; so that it is nothing short of the absurd to speak, on this basis, of German express-train speeds averaging higher than American.

For the time being let it be assumed that the table for America is free from the many serious omissions and inaccuracies pointed out in the preceding paragraphs. With this assumption in mind, do the tables warrant the conclusion drawn from them by Mr. Schulze? This question can only be answered in the negative, for the tables are not comparable.

Before calling attention to Mr. Schulze's errors and omissions it may be asked why the trains between Philadelphia and Atlantic City are altogether omitted from the comparison. To be sure, the very fastest trains on both of the railways concerned did not run during the winter months at the time Mr. Schulze wrote; but this is not a sufficient reason for dropping the trains between these two cities entirely out of the comparison, for there were several trains over each of the railways whose average speed, both winter and summer, exceeded Mr. Schulze's figures of 65 kilometers per hour. Mr. Schulze was aware of this, for at another point he states that a winter train on one of the railways had an average speed of 89.4 kilometers per hour, and one on the other railway an average speed of 82.6 kilometers.[1] Even the lower of these speeds is higher than that attained on any German railway in the comparison.

As has already been stated, the territorial scope of the two tables is not coextensive. The one for Germany was said to contain, and in all probability does contain, the fastest trains in the whole empire, regardless of the cities between which they run, while the table for America only contains the trains between a few cities.

It will be remembered that Mr. Schulze explained that the task of computing the speed of all American trains was so great that he would not attempt it. To bring his labors within what

[1] *Archiv für Eisenbahnwesen*, 1901, p. 794.

he deemed proper bounds, he confined his investigations to the railways between a few large cities. Consequently the table, even if this limited field had been properly covered, would have had but slight value for comparative purposes. Many of the most important lines received no consideration whatever. For example, the great railways radiating north, west, and southwest, and at least one running south, from Chicago, the second city of the union in population, were wholly ignored; with the single exception of the Chicago & North-Western railway, whose Chicago-Council Bluffs line was represented by the "Overland Limited," a train whose speed, as I have shown on page —, is exceeded by three other trains over the same track. These railways, centering in Chicago, have many trains in the aggregate between Chicago, on the one hand, and Milwaukee, Madison, Cedar Rapids, Rock Island, Des Moines, Burlington, Council Bluffs, Ft. Madison, and Champaign, on the other hand, that have an average speed in excess of 65 kilometers per hour. Even the excellent service between Chicago and Milwaukee on the Chicago & North-Western and on the Chicago, Milwaukee & St. Paul railways received no consideration at Mr. Schulze's hands.

For the comparative purpose for which it is used, the table of American trains is unsatisfactory for still other reasons. It does not include all the trains between the few cities that were selected by Mr. Schulze having an average speed above 65 kilometers per hour. A place in the table should have been given to train No. 43, between Boston and New York, via Springfield, over the New York, New Haven & Hartford and the Boston & Albany railways, with an average speed of 69.1 kilometers per hour; to train No 24, between Cleveland and Pittsburg, via Youngstown, over the Erie and the Pittsburg & Lake Erie railways, with an average speed of 66.8 kilometers per hour; to train No. 503, between New York and Pittsburg, via Baltimore, over the Royal Blue line,[1] with an average speed of 66.4

[1] The Pennsylvania is erroneously stated by Mr. Schulze to be a link in this line.—*Archiv für Eisenbahnwesen*, 1901, p. 795. He should have said "Philadelphia & Reading railway."

kilometers per hour; and to train No. 311, between Philadelphia and Buffalo, over the Philadelphia & Reading and the Lehigh Valley railways, with an average speed of 75.4 kilometers per hour. These are a few of the many trains that must be taken account of to make the comparison effective, even for the limited district it was said to cover.

A comparison of the two tables is misleading for another reason. In the case of all German trains the average speed per hour of runs without a stop, of 90 kilometers or more, is also given, and this speed, when higher than the average speed maintained between the termini, was taken as the average speed of the train, while in the case of the American trains this additional information was generally given only in case of the *fastest* trains. This special treatment carried six German trains from the group having a speed of less than 65 kilometers per hour into the group having an average speed of 65 or more kilometers per hour. At the same time the average speed between termini of several of these trains fell considerably below 65 kilometers per hour. Only three American trains were lifted over the dividing line by the use of this device. Had the *slower* American trains been accorded as favorable treatment as the German trains, few if any of them would have been found in the class showing a speed of less than 65 kilometers per hour.

By still another device German train service is made to appear to much better advantage than it deserves. Several of the fastest German trains are broken up, and thus each one counts for two or more trains. For example, the "Orient Express," which runs through Germany from Avricourt to Salzburg, a distance of 659 kilometers, appears in the table three different times; the "North and South Express," which runs from Berlin to Kufstein, a distance of 753 kilometers, appears in the table two different times; the "North Express," on its journey from Herbesthal to Hannover, a distance of 410 kilometers, appears to be counted as two different trains; and a Berlin-St. Petersburg express, on its journey from the former city to Eydtkuhnen, on the German frontier, a distance of 742 kilometers, appears in the table as two different trains.

It is misleading to count each one of these trains in the comparison as two or even three trains, while the "Lake Shore Limited," running from Chicago to New York, a distance of 1,578 kilometers; the "Pennsylvania Limited," running between the same cities; the "Overland Limited," running from Chicago to San Francisco, a distance of 3,895 kilometers, each counts as but a single train. This is especially true of the "Overland Limited;" for, at the time Mr. Schulze wrote, it ran over three entirely independent railways, namely, the Chicago & North-Western, the Union Pacific, and the Southern Pacific.

The possibilities of train multiplication, should this divisional method be applied to American railways, can be inferred from an examination of one of the trains just cited. If the "Lake Shore Limited" were treated the same as the "Orient Express," it would yield seven trains instead of but one.

While these examples show great diversity of treatment, there are other instances in the tables which show even greater discrepancy. No. 23 of the American table purports to be a train from Chicago to Cleveland by the way of Cincinnati—a route, by the way, over which, it is needless to say, no one travels. To make this journey would be like going from Brussels to Berlin by the way of Zürich. Of course, no one train makes this whole journey; an entirely different train makes the trip from Cincinnati to Cleveland than the one which starts from Chicago. The integration of these two trains in the table appears doubly misleading, because, while no two trains over the same railway making a good connection at Cincinnati ran the entire distance of 916 kilometers at an average speed in excess of 65 kilometers per hour, there were at the same time two trains, one running from Chicago to Cincinnati over the "Monon" route, and the other from Cincinnati to Cleveland over the "Big Four," but making an indifferent connection at Cincinnati, each of which exceeded this speed. The method of treatment employed by Mr. Schulze yielded no train of sufficient speed to receive consideration; the other would have yielded two. Of course, I do not wish to be understood as intimating that this discrepany

explains why the two trains over this exceedingly roundabout route were linked together in this manner.

What is a fair basis of comparison? a basis upon which the train service of one country can be contrasted with that of another? That these are pertinent questions the preceding paragraphs have abundantly shown. No comparison of any value can be instituted until the things compared have been reduced to a common unit. I shall not attempt to point out in detail the factors that must be harmonized to secure valuable results, for most of them will appear at once to anyone of a judicial mind. A few of these factors, however, must be briefly dwelt upon.

In the comparison instituted by Mr. Schulze the element of distance does not receive any consideration. For the most part the American trains selected by him ran between cities widely separated. This is shown by comparing the distances run by the trains found in the German and the American table. The aggregate distance traversed by the 42 American trains was 34,791 kilometers, and the average distance was 828 kilometers, while the total distance run by the 46 German trains was but 14,540 kilometers, and the average distance was but 316.1 kilometers. Distance affects speed in two ways. Great stretches of track without sharp curves and free from mountain ranges to be overcome, wide rivers to be crossed, perhaps ferried, and large cities to be passed through, are rare, and it is therefore much more difficult, from the physical point of view, to maintain a high speed over a great distance. For instance, the "Overland Limited," one of the trains selected by Mr. Schulze, must cross, on its journey from Chicago to San Francisco, two wide rivers and three mountain ranges, and, finally, a wide bay by ferry. Some idea of the grades to be overcome may be inferred from the elevations above the sea of the following places which are successively passed through on a westward journey to the Pacific coast: Omaha, 1,031 feet; Sherman, on the continental divide, 8,247; Green River, 6,077; Aspen, 7,395; Ogden, 4,301; Summit (at the top of the

Sierras), 7,017; and San Francisco, 14. The trains running between the cities of the Atlantic coast and those of the Mississippi Valley must cross the Alleghany mountains and their outlying elevations, and several must be ferried across the Detroit River. These examples should show how difficult it is to maintain a high average speed for the great distances cited by Mr. Schulze, and should suggest how necessary it must be for the purpose which he has in view, to eliminate great natural and artificial obstacles by breaking up long runs and dropping from consideration stretches of track which for any reason are unfavorable to the maintenance of high speed.

In the preceding paragraph it has been shown that physical obstacles are likely to intervene and render impossible the maintenance of high average speed for a great distance. A regard for the convenience of the greatest possible number of travelers often makes it undesirable to maintain a uniform high speed between distant points, even where physical obstacles do not prevent. There are hours of the day, but more especially of the night, when passengers do not care to take or leave a train. Trains must arrive at, and depart from, the great centers of population at such hours as will least interfere with the transaction of business and promote in the largest degree the comfort of those who travel.

A schedule of trains made up in conformity with these considerations will show great variations of speed over different sections of track by trains which have about the same average speed between the distant termini. One train may run over one division at a high rate of speed, and another may attain its highest speed over another portion of track or between different cities. The speed attained will depend upon the particular set of patrons whom the train is intended to serve. This being so, it becomes apparent that a small unit of distance is much more likely to show a great number of high-speed trains than a large one.

That this is true is made clear by the following table of trains between St. Louis and Pittsburg. Train No. 2 is the

one selected by Mr. Schulze. The computations are made on the basis adopted by Mr. Schulze, as explained on page 372, and the data are taken from the source of information cited by him.

TRAINS FROM ST. LOUIS TO PITTSBURG.

(Via P., C., C. & St. L. R. R.)

Train Number.	St. Louis to Pittsburg.		Divisions.			
			St. Louis to Indianapolis.		Indianapolis to Pittsburg.	
	Distance,[1] Kilometers.	Average Speed per Hour, Kilometers.	Distance, Kilometers.	Average Speed per Hour, Kilometers.	Distance, Kilometers.	Average Speed per Hour, Kilometers.
2	988.5	61.8	386.4	**66.4**	602.1	58.9
14	988.5	57.9	386.4	49.2	602.1	**65.3**

This table makes it apparent that the best showing can be made by breaking up long routes into short ones, a procedure which makes it possible to select different trains for different sections of track. According to the method of computation adopted by Mr. Schulze, there was no train over this route having an average speed so high as 65 kilometers per hour. While the method followed in the table, which was the one used by Mr. Schulze in computing the speed of German trains, shows two trains having a speed in excess of 65 kilometers per hour, Train No. 14 being a night train out of St. Louis, there is no need for haste in getting to Indianapolis, as this city can easily be reached at as early an hour in the morning as the passengers will care to leave the train, and consequently the train drags along at rate of but 49.2 kilometers per hour. Train No. 2, on the other hand, is an afternoon train, and there is no time to lose if Indianapolis is to be reached early in the evening, so the train is pushed along at an average speed of 66.4 kilometers per hour.

It does not appear to me that much light can be thrown upon

[1] Mr. Schulze gives this distance as 1,000 kilometers. This is an over-statement: these trains run via Dayton, not via Bradford Junction, as assumed by him.

the comparative value of the train service rendered in different countries by the method here followed by Mr. Schulze. The computation of the average speed per hour of all the trains of the countries under consideration being out of the question, because of the magnitude of the work involved, it must be admitted that a more satisfactory answer than that obtained by Mr. Schulze to the question whether the train service of one country is better than that of another can be found in a thorough comparison of the service between a few cities. Such a comparison would not only be qualitative, but quantitative as well. Obviously, if in one country twice as many trains at a given rate of speed are run over the selected railway as in another country, a comparison which turns upon the rate of speed alone is faulty in method.

To obtain valuable results the cities must be separated by approximately equal distances, the country traversed must have the same physical characteristics, and the cities chosen must be as nearly equal in population as can be, or they must be on routes of travel of equal importance. Strange to say, the plan just outlined was followed by Mr. Schulze in the comparisons made by him of the train service of Germany, France, and Great Britain,[1] and why the same method was not employed by him in contrasting the speed of American and German express trains is not apparent.

On the following page a table will be found showing the number and speed of the trains on two German and two American lines. The German lines are those between Berlin, the imperial capital, and Hamburg, the next largest city, and between Berlin and Cologne, which is one of the great western gateways of travel. The American lines are those between New York (Jersey City)[2] and Washington, and between New York and Buffalo. The service on these lines fairly reflects the best service of the respective countries for medium and long-distance runs. At any rate the German lines are those selected by Mr.

[1] *Archiv für Eisenbahnwesen*, 1901, pp. 144–151.

[2] All of the trains for Washington start from the western shore of the Hudson, as do many of those for Buffalo.

Schulze for comparison with French and English trains, and it may therefore be assumed that they represent the best service that can be found in the empire. It is to be noted that in each case the run of the American train is materially longer than that of the German train. In this table only the trains running in one direction are given. The distance given at the head of the columns is the short-line distance; the other distances can be found in the more detailed tables which follow. To enable the eye to grasp the figures easily they are grouped by rates of speed, beginning with the highest speeds. The speed of the trains has been computed on the basis adopted by Mr. Schulze, and explained on page 372 of this article. If any points still remain in doubt, they will probably be found explained in the introduction, beginning on page 44, to the detailed tables.

EXAMPLES OF GERMAN AND AMERICAN TRAIN SPEEDS.

Average Running-Speed per Hour.

Medium Distance Trains.				Long Distance Trains.			
Berlin to Hamburg, 178 Miles, or 286 Kms.		New York to Washington, 224 Miles, or 361 Kms.		Berlin to Cologne, 358 Miles, or 576 Kms.		New York to Buffalo, 409 Miles, or 658 Kms.	
Miles.	Kms.	Miles.	Kms.	Miles.	Kms.	Miles.	Kms.
50.2	80.9	50.2	80.8			54.2	87.2
50.1	80.6	50.2	80.8			48.2	77.6
49.8	80.2	50.1	80.6			44.2	71.2
		48.4	77.9	43.3	69.8	43.1	69.5
		48.1	77.4	42.6	68.6		
		47.9	77.1	42.0	67.6	42.1	67.8
		46.6	75.0	42.0	67.6	41.8	67.3
		46.5	74.9			41.8	67.2
		45.7	73.5			41.1	66.1
45.5	73.3	45.6	73.4	40.8	65.7	40.9	65.9
		44.8	72.0			40.9	65.9
		44.2	71.2	39.9	64.2	40.1	64.5
		43.5	70.1	39.8	64.1	40.0	64.3
		43.1	69.5			39.9	64.1
		42.7	68.8	39.6	63.8	39.7	63.9
		42.6	68.7			39.4	63.5
		42.5	68.4			38.8	62.5
		42.5	68.4			38.0	61.2
		42.1	67.8	37.6	60.6		
		41.8	67.4				
40.0	64.3						
38.6	62.2						
36.3	58.4						

If the service on the routes selected is typical of that of the two countries under consideration, it is obvious that the train service of American railways is greatly superior to that of the German railways. The trains are not only run at a higher rate of speed but much more frequently than on the German railways. Both American routes are longer than the corresponding German routes, and the physical obstacles to be overcome are greater. The average speed of the seven trains running from Berlin to Hamburg is but 71.4 kilometers per hour, while the average speed of the best seven trains running from New York to Washington is 78.5 kilometers per hour, and the average speed of the twenty express trains running between these cities is 73.2 kilometers per hour. The average speed of the nine trains running from Berlin to Cologne is but 65.8 kilometers per hour, while that of the best nine trains running from New York to Buffalo is 71.1 kilometers per hour, and the average speed of the seventeen express trains running between these cities is 67.6 kilometers per hour.

The second point, and the one to which I wish especially to direct attention, is the greater number of high-speed trains on American railways. It was originally contended that a route over which but one fast train runs daily should not count for as much in a comparison as a route over which several fast trains run. The facts presented in the table illustrate and emphasize this point. It will be remembered that, in the comparison instituted by Mr. Schulze, trains which reached or exceeded a speed of 65 kilometers per hour, were called fast trains. Applying this standard to the trains of the foregoing table, we find there are 20 fast trains running over the two routes from New York to Washington, and but 4 fast trains running over the one route from Berlin to Hamburg; and we find that there are 10 fast trains running over the 5 routes from New York to Buffalo, and but 5 fast trains running over the four routes from Berlin to Cologne. The contention that a comparison to be of value must be quantitative as well as qualitative has been made clear by this table.

The true character of the service over a line of railway does not appear from a single train. In England and Germany, but more especially in France, and several of the other countries of Europe, the train service indicates the social strata found in these countries. There are a few fast trains for the well to do who pay very high rates, but very slow trains with inferior equipment for the ordinary traveler. To be sure excess fares must be paid on several American trains, but they are very few in number, and the present tendency is decidedly toward a uniform rate for all trains. American readers, at least, need not be told that the strong lines between the east and the west would gladly introduce a uniform rate, and are only prevented by the opposition of the weaker lines. In the West the same spirit prevails. Sooner than concede the excess-fare principle for fast trains, the Chicago & North-Western railway, which recently cut down the running time between Chicago and Omaha of its "Overland Limited" train fifty minutes, upon the demand of those who were either unable or unwilling to make a corresponding reduction of time, practically restored its train to its old schedule.

In the succeeding tables detailed information will be found as to the trains whose speed is given in the preceding table. The first column, in the case of American trains, shows the number by which the train is designated by the company operating it. Officially the train is always designated by this number, although it may be popularly known by some name such as the "Overland Limited" or "Colorado Special." In the case of the German trains the first column simply shows the running number. The second column indicates the route over which the train runs. This is done either by giving the name of the company operating the train, from which the route can be inferred, or by giving the names of a few cities determinative of the route. It was thought that the former method would be more satisfactory in reporting American trains, as it would give most persons a general idea at least of the route followed. The third and fourth columns show the length of the route traversed by the train immediately under consideration. Care has been taken in ascertaining these

distances, for in the case of the short-distance trains a slight error in mileage would materially affect the computed speed of the train. It is to be noted that the through trains between New York (Jersey City) and Washington on the Pennsylvania railroad run to the Union station in Baltimore. The distance from this

EXPRESS TRAINS FROM BERLIN TO HAMBURG.

Number.	Route.	Whole Distance.		Time of		Journey Time.		Station-Stops.		Running Time.		Running Speed per Hour.	
		Miles.	Kilometers.	Departure.	Arrival.	Hours.	Minutes.	Number.	Time Lost.	Hours.	Minutes.	Miles.	Kilometers.
1	Via Wittenberge.	178	286	6:30	10:06	3	36	1	4	3	32	50.2	80.9
2	" "	"	"	7:20	10:58	3	38	1	5	3	33	50.1	80.6
3	" "	"	"	1:17	4:57	3	40	2	6	3	34	49.8	80.2
4	" "	"	"	9:00	1:04	4	4	4	10	3	54	45.5	73.3
5	" "	"	"	5:30	10:23	4	53	20	26	4	27	39.9	64.3
6	" "	"	"	6:37	11:41	5	4	21	28	4	36	38.6	62.2
7	" "	"	"	12:06	5:29	5	23	19	29	4	54	36.3	58.4

EXPRESS TRAINS FROM NEW YORK (JERSEY CITY) TO WASHINGTON.

Train Number.	Railroad.	Whole Distance.		Time of		Journey Time.		Station-Stops.		Running Time.		Running Speed per Hour.	
		Miles.	Kilometers.	Departure.	Arrival.	Hours.	Minutes.	Number.	Time Lost.	Hours.	Minutes.	Miles.	Kilometers.
535	Royal Blue Line.	229.3	369	1:12	6:00	4	48	7	14	4	34	50.2	80.8
527	" " "	"	"	11:42	4:30	4	48	7	14	4	34	50.2	80.8
509	" " "	"	"	3:12	8:00	4	48	6	13	4	35	50.1	80.6
67	Pennsylvania R. R.	227.4	366	1:14	6:10	4	56	6	14	4	42	48.4	77.9
59	" " "	224.4	361	3:44	8:30	4	46	4	6	4	40	48.1	77.4
51	" " "	227.4	366	11:14	4:10	4	56	5	11	4	45	47.9	77.1
49	" " "	"	"	10:32	3:40	5	8	5	15	4	53	46.6	75.0
501	Royal Blue Line.	229.3	369	10:12	3:30	5	18	10	22	4	56	46.5	74.9
517	" " "	"	"	8:12	1:40	5	28	20	27	5	1	45.7	73.5
525	" " "	"	"	5:12	10:30	5	18	10	16	5	2	45.6	73.4
45	Pennsylvania R. R.	227.4	366	8:15	1:42	5	27	9	22	5	5	44.8	72.0
503	Royal Blue Line.	229.3	369	7:12	12:50	5	38	10	27	5	11	44.2	71.2
505	" " "	"	"	4:42	10:35	5	53	18	37	5	16	43.5	70.1
31	Pennsylvania R. R.	227.4	366	1:15	6:50	5	35	10	19	5	16	43.1	69.5
35	" " "	"	"	9:15	2:51	5	36	8	17	5	19	42.7	68.8
63	" " "	"	"	4:45	10:20	5	35	4	15	5	20	42.6	68.7
65	" " "	"	"	5:14	10:55	5	41	9	20	5	21	42.5	68.4
57	" " "	"	"	2:32	8:15	5	43	10	22	5	21	42.5	68.4
69	" " "	"	"	3:45	9:29	5	44	6	20	5	24	42.1	67.8
507	Royal Blue Line.	229.3	369	1:42	7:50	6	8	19	39	5	29	41.8	67.4

city to Washington usually reported is the distance from the Calvert street station. The "Congressional Limited," on the Pennsylvania, which is train number 59, does not follow exactly the same route as the other trains on this railway from New York (Jersey City) to Washington. It does not run into the Broad street station in Philadelphia, but stops at the Powelton avenue station, and thus reduces the whole distance by a total of 2.92 miles in running in and out of Philadelphia. Mr. Schulze reports the distance run by this train as 370 kilometers, but the actual distance is 361 kilometers. In the case of the "Royal Blue" trains he understates the distance by two kilometers, although he allows one mile for the Hudson river, for which I allow nothing. The through trains between New York (Jersey City) and Washington over this line do not run into the Reading terminal in Philadelphia, but to the Twenty-fourth and Chestnut streets station. In columns 5 and 6 the boldface type represents afternoon time. By journey-time, as has already been explained, is meant the total time elapsing from the moment of the departure of the train from the initial station to the moment it comes

EXPRESS TRAINS FROM BERLIN TO COLOGNE.

Number.	Route.	Whole Distance.		Time of		Journey Time.		Station-Stops.		Running Time.		Running Speed per Hour.	
		Miles.	Kilometers.	Departure.	Arrival.	Hours.	Minutes.	Number.	Time Lost.	Hours.	Minutes.	Miles.	Kilometers
1	Via Stendal, Hannover, and Essen	362.1	583	8:55	5:46	9	51	11	30	8	21	43.3	69.8
2	Via Magdeburg, Hannover and Essen	380.8	613	9:30	7:08	9	38	13	42	8	56	42.6	68.6
3	Via Stendal, Hannover, and Essen	362.1	583	11:01	8:00	8	59	6	21	8	38	42.0	67.6
4	Via Stendal, Hannover, and Oberhausen	363.9	586	11:45	9:05	9	20	14	40	8	40	42.0	67.6
5	Via Magdeburg, Hildesheim, and Soest	357.7	576	1:05	10:26	9	21	14	35	8	46	40.8	65.7
6	Via Stendal, Hannover, and Oberhausen	363.9	586	7:04	11:59	16	55	27	467	9	8	39.9	64.2
7	Via Stendal, Hannover, and Essen	362.1	583	9:50	7:51	10	1	19	55	9	6	39.8	64.1
8	Ibid.	"	"	1:08	11:00	9	52	20	44	9	8	39.6	63.8
9	Ibid.	"	"	7:40	6:46	11	6	26	89	9	37	37.6	60.6

to a stop at its final destination. By running-time is meant the journey-time minus the time lost in station-stops. For the trains of this country, this, of course, seldom gives the actual running-time, because of the numerous grade crossings which still exist and which frequently necessitate a full stop. But, as there were usually no data to compute the time thus lost, it was thought best to wholly ignore these stops.

EXPRESS TRAINS FROM NEW YORK TO BUFFALO.

Train Number.	Railroad.	Whole Distance.		Time of		Journey Time.		Station-Stops.		Running Time.		Running Speed per Hour.	
		Miles.	Kilometers.	Departure.	Arrival.	Hours.	Minutes.	Number.	Time Lost.	Hours.	Minutes.	Miles.	Kilometers.
51	N. Y. C. & H. R. R. R.	440.0	708	8:30	4:45	8	15	4	8	8	7	54.2	87.2
9	Lehigh Valley R. R....	446.6	720	12:14	9:55	9	41	13	25	9	16	48.2	77.6
3	Del., L. & W. R. R....	409.0	658	10:15	8:00	9	45	22	30	9	15	44.2	71.2
3	N. Y. C. & H. R. R. R	440.0	708	8:45	7:20	10	35	6	23	10	12	43.1	69.5
11	" " " " " "	"	"	1:00	11:55	10	55	6	28	10	27	42.1	67.8
19	" " " " " "	"	"	5:30	4:15	10	45	4	14	10	31	41.8	67.3
1	West Shore R. R.....	428.2	689	3:15	1:50	10	35	8	20	10	15	41.8	67.2
1	Erie R. R.....	423.0	681	9:15	8:00	10	45	19	27	10	18	41.1	66.1
17	N. Y. C. & H. R. R. R.	440.0	708	4:00	3:10	11	10	13	25	10	45	40.9	65.9
7	Lehigh Valley R. R....	446.6	720	8:15	7:55	11	40	16	45	10	55	40.9	65.9
9	Del., L. & W. R. R....	409.0	658	9:00	7:45	10	45	21	33	10	12	40.1	64.5
29	N. Y. C. & H. R. R. R.	440.0	708	8:00	7:25	11	25	10	24	11	1	40.0	64.3
21	" " " " " "	"	"	2:00	1:30	11	30	15	27	11	3	39.9	64.1
33	" " " " " "	"	"	9:20	8:45	11	25	6	20	11	5	39.7	63.9
19	West Shore R. R.....	428.0	689	8:30	7:55	11	25	9	33	10	52	39.4	63.5
7	Erie R. R.....	423.0	681	7:45	7:05	11	20	14	26	10	54	38.8	62.5
23	N. Y. C. & H. R. R. R.	440.0	708	6:00	6:00	12	0	9	26	11	34	38.0	61.2

I believe it has now been shown that Mr. Schulze's table neither furnishes the promised "safe and satisfactory guide to the speed of American trains" nor a proper basis for a comparison of the speed of American and German express trains. Perhaps it has also appeared, as the discussion proceeded, that the statistical matter appearing in at least one scientific journal, as well as that which found a place in some American and foreign newspapers, greatly needs verification before it can be accepted.

GEORGE G. TUNELL.

CHICAGO.

GOVERNMENT CONSTRUCTION OF IRRIGATION WORKS.

For the past ten or twelve years there has been a growing demand that the government aid in the construction of irrigation works for the reclaiming of the arid lands of the West. This demand was endorsed by both the great political parties in their last platforms, and culminated in 1901 in the defeat of the river and harbor bill in the United States Senate, and has during the last session of Congress resulted in a combination of western representatives for the purpose of forcing that body to recognize the demands of the West in this regard. At the opening of the last session of Congress, the movement for the first time received the endorsement of the president of the United States in his annual message. Politically, the movement has, therefore, all the endorsement which could be asked by the most exacting partisan. But in the literature on the subject the economic and legal phases of the question have been generally avoided. It is the purpose of this paper to discuss some of these neglected phases of the general subject of government construction of irrigation works, and more particularly of the plan recommended by the president, and that formulated in the "irrigation bill" as it passed the United States Senate during the present session of Congress.

The general proposition is that the usual flow of most of the streams in the arid region is used on lands already under cultivation, but that large volumes of water run to waste during the winter and the flood period of early summer, and that this water which now runs to waste should be stored. Further, some of the large rivers, notably the Missouri, the Colorado, and the Columbia, have been little used for irrigation because of the difficulty of getting the water out of them onto the high lands which confine these streams to narrow channels. The work of storing the waste waters, and of placing the water of the streams like

those mentioned within the reach of settlers, has been declared to be beyond the power of private enterprise, and, therefore, the duty of the government. President Roosevelt states the case as follows:

> Great storage works are necessary to equalize the flow of streams and to save the flood waters. Their construction has been conclusively shown to be an undertaking too vast for private effort. . . . . The government should construct and maintain these reservoirs as it does other public works. . . . . The reclamation of the unsettled arid lands presents a different problem. Here it is not enough to regulate the flow of streams. The object of the government is to dispose of the land to settlers who will build homes upon it. To accomplish this object water must be brought within their reach. . . . . These irrigation works should be built by the national government. The lands reclaimed by them should be reserved by the government for actual settlers, and the cost of construction should, so far as possible, be repaid by the land reclaimed. The distribution of the water, the division of the streams among irrigators, should be left to the settlers themselves in conformity with state laws and without interference with those laws or with vested rights.[1]

The following table, showing the average monthly discharge of the Arkansas river at Cañon City, Col., brings out the necessity for equalizing the flow of streams mentioned by President Roosevelt:

AVERAGE MONTHLY DISCHARGE OF ARKANSAS RIVER AT CAÑON CITY, COL., 1898.[2]

	Cubic feet per second.		Cubic feet per second.
January	270[3]	July	1,613
February	350[3]	August	326
March	338[3]	September	189
April	393[3]	October	228
May	909	November	302
June	2428	December	350[3]

This table shows the general character of the streams used for irrigation. The flood is sometimes earlier or later, and in some years lasts longer than in others, depending on weather conditions in the drainage area of the stream.

[1] *Message to Congress*, beginning of first session Fifty-seventh Congress.

[2] From *Twentieth Annual Report, U. S. Geological Survey*, Part IV, p. 325.

[3] Approximate.

The crops which can be raised by the use of a stream depend very largely on the character of its flow, and in general the value of the crop varies with the length of time which it requires to be watered. With water only during flood-time the farmer is limited to raising wild hay, which gives a return of perhaps $5 per acre; with water in May, June, and July, he may raise grain and two crops of alfalfa, which may bring him from $15 to $20 per acre; with water in August, as well as the preceding months, he may raise potatoes and sugar beets, and a third crop of alfalfa, increasing his returns to $30 to $100 or more per acre; and with water later in the season he may plant orchards which will yield still larger returns. Assuming that one cubic foot per second will serve 100 acres, a liberal estimate, the Arkansas river in 1898 would have matured 32,600 acres of crops requiring water in August, while it would have raised 242,800 acres of native hay. If an average of say 500 cubic feet per second could be stored during June and added to the flow of the river in August an area of 50,000 acres which had been devoted to native hay, yielding $5 per acre, could be planted to crops yielding from $30 to $100 per acre. The particular products named above are not raised in all parts of the West, but serve to illustrate the general principle. Again, the return from native hay will not justify any considerable outlay for bringing water to the land, and much of the flood would be allowed to go to waste if not stored, as will the winter flow of the stream. Storage will, therefore, increase the area irrigated, but its greatest advantage is in making it possible to raise high-priced products.

The construction of these storage works has been stated to be beyond the power of private effort. Although this statement appears in countless resolutions by conventions, platforms, reports, and hearings before committees of Congress, the writer has never seen one fact stated in support of the contention or one argument to prove it. It seems to be considered a self-evident proposition. It is true that a great many irrigation companies have been financial failures, but this has been equally true of companies in every other line of business, especially

during the hard times which we recently passed through. It is only fair to suppose that some of the failures of irrigation companies were due to the general depression which affected all lines of business. But the most frequently assigned cause for the failure of companies building irrigation works for the purpose of furnishing water to farmers has been the failure to get settlers under the canals to whom to deliver water. They tried to force development beyond the demand for the lands, and failed. The capital invested was, therefore, unproductive, and investors soon learned that irrigation was a good thing to let alone. Irrigation districts were organized in California for the purpose of obtaining money by issuing bonds based on the property of the districts. These failed largely because of frauds in their organization, which have ever since given a bad name to irrigation securities of all kinds, making it hard to borrow money for such works. Whether they would have failed if honestly conducted has not been demonstrated. But meantime construction has been going on. The farmers on the eastern slope of the Rocky Mountains in Colorado have built reservoirs enough to hold the floods of ordinary years, and have more under construction which will hold all except the most extraordinary floods. On the west side of the range in Colorado reservoirs are not yet needed, as the streams furnish more water than is used. In Wyoming one of the largest reservoirs in the West has been built within the past few years, and in the northern part of that state the construction of large canals has been going on continuously for several years. Construction of both reservoirs and canals has been going on in Utah, and farmers who feel the need of late water are taking steps to provide it. In the summer of 1901 the irrigators along the Jordan River in that state held meetings and appointed committees to investigate the various possible ways of increasing their water supply preliminary to taking steps to that end. During the same summer the people of the Salt River valley in Arizona had similar meetings, and spent considerable money in preliminary work, and are now trying to get through Congress a bill which will allow them to lend

the credit of some of their counties to reservoir construction. They are not asking the government to build their works, but are simply asking permission to do it themselves. During the past year several irrigation companies have been organized in New Mexico. From all this it appears that the impotency of private effort is at least open to serious question. But the real question is not *the necessity* for government construction. There can be no absolute necessity for it, because the work can be left undone, leaving conditions as they are, if the people of the West are unable to improve them. The question then comes back to *the expediency* of government construction.

The whole question of the development of the arid West would be greatly simplified if that region were wholly undeveloped, and no rights had been vested and no customs established. But when that condition existed the future importance of the region was not appreciated. The result is that whatever is now done must be done subject to existing rights, and, in a large measure, in conformity with existing laws. Under the present conditions the government may proceed along three lines: (1) The government may, like private land-owners, provide water to irrigate its own lands; (2) the government may appropriate water for "sale, rental, or distribution;" (3) there would seem to be nothing to prevent the government building reservoirs and turning the water into the streams, to be taken out below, the same as if it were a part of the natural flow of the stream; or to prevent its building canals from which water could be appropriated as if they were natural streams. In the following pages the attempt is made to show what would be the results of following any one of these courses.

GOVERNMENT CONSTRUCTION TO RECLAIM GOVERNMENT LANDS.

All the land in the arid region, with the exception of that in Texas, and that included in Spanish and Mexican land grants, was at one time the property of the government. This land has been disposed of in three ways: By patent to settlers under the homestead, pre-emption, desert land, and mining laws; by

grant to the several states and territories for educational and other purposes; and by grant as subsidies to railroad and wagon road companies. But large areas are still in government ownership. From natural causes most of the land which has been disposed of lies along the streams. As settlers cannot live without a water supply, the land taken up by them must be within the reach of the streams, while within the mountainous areas the only lands which can be cultivated, regardless of the water supply, are in the valleys of the streams. For equally good reasons the railroads have, as a rule, followed the streams, and their grants include the alternate sections for given distances on both sides of their tracks. Some of the grants to the states and territories have included certain sections in all townships (usually sections 16 and 36), but in many grants the state is allowed to choose the lands, and naturally chooses the more valuable tracts. In this way it happens that, while the greater part of the land in some states is still in government ownership, a large part of the cultivable land within reach of the streams is in private, corporate, or state ownership. Assuming, however, that there is government land which can be reached by water from the streams of the arid region, most of these streams are already in use for irrigating private lands. Where these private lands use the entire stream, both ordinary and flood flow, as in eastern Colorado, there is, of course, no water for the government to appropriate, and its lands must be used for grazing. Where the ordinary flow only is used for private lands, the government can obtain a supply of water by storing the floods. As pointed out above, without storage the greater part of the land watered from a stream is necessarily devoted to crops which bring a low return. Now, if the government comes in and stores the water and reclaims new lands, these private lands are forever condemned to the comparatively primitive agriculture which is possible without a late water supply. The history of the Union Colony at Greeley, Col., and of other sections, shows that the farmers will in the natural course come to a time when they will provide themselves with means for storage. But in the case

above assumed they will be shut out from this, because the water has already been stored and applied to other lands. While there is no legal obstacle in the way of such a course on the part of the government, justice would seem to demand that the owners of private lands should not be deprived of the possibility of improving their conditions. Stored water has its greatest value as a supplement to an existing supply, and used in that way will produce far greater returns than when used on lands which have no other supply. An acre-foot of water used to finish a crop of potatoes will produce a value of probably $100 more than could be produced by the land if it was without that water, while the same quantity used on land which has no other supply will produce a value of perhaps $5. Both justice and economy demand, then, that where the lands already under cultivation need the water of a stream the government should not take it to reclaim new lands.

There is another class of streams—those along which there is both public and private land which can be reclaimed, and in which there is unappropriated water. In such a case there would be no difference, as far as public considerations are concerned, whether the water is used on public or private lands, since the public lands will at once pass to private ownership. If the government should take all the water there would be a certain injustice to private owners, as in the other cases, since they would be permanently shut out from improving their lands.

GOVERNMENT CONSTRUCTION FOR SALE, RENTAL, OR DISTRIBUTION.

In all the arid states water may be taken from the streams by individuals or corporations for distribution to others than the owners of the works. There are some theoretical distinctions as to whether the charges made for this delivery are for the carrying of the water or for the water itself. In practice this makes no particular difference. It costs the farmer a certain amount to get the water to his field, and it does not reduce this charge any to call it a toll for delivery rather than a price for the water. It is fair to suppose that no state would raise any objection to

the government taking water from its streams under these general laws. The water could then be delivered to consumers, either owners of private lands or homesteaders on the public lands, for the price fixed by law, by agreement, or, in some states, by the county commissioners. This is the plan contemplated in the irrigation bill (S. B. 3057) passed by the United States senate March 1, 1902. Section 4 of that act is in part as follows:

> That upon the determination by the secretary of the interior that any irrigation project is practicable, he shall give public notice of the lands irrigable under such project, and limit of area per entry, which limit shall represent the acreage which, in the opinion of the secretary, may be reasonably required for the support of a family upon the lands in question; also of the charges which shall be made per acre upon the said entries, and upon lands in private ownership which may be irrigated by the waters of the said irrigagation project, and the number of annual installments, not exceeding ten, in which such charges shall be paid and the time when such payments shall commence, the said charges to be determined with a view of returning to the reclamation fund the estimated cost of construction of the project.

Section 6 further provides:

> That when the payments required by this act are made for the major portion of the lands irrigated from the waters of any of the works herein provided for, then the management and operation of such irrigation works shall pass to the owners of lands irrigated thereby, to be maintained at their expense under such form of organization and under such rules and regulations as may be acceptable to the secretary of the interior.

This plan is not open to the objection raised against government construction for government lands, that it will deprive private owners of the opportunity to improve their lands since it includes the furnishing of water to such lands. As in the former case, no opportunity for any works would arise on those streams already fully utilized. On streams where the ordinary flow is all used, but where there is flood water open to appropriation, the water made available should be supplied first to the lands already under cultivation, and if there is a surplus it can go to reclaim other lands either public or private. The latter section quoted provides for turning the works over to the users of the water when the charges made against the major portion of the lands to

be irrigated are paid. On such streams as those under consideration, government construction under this bill will simply amount to a loan to the irrigators on the stream, on ten years' time. It will no doubt help them to raise much more valuable crops, but there would seem to be no reason for thus helping one class of farmers, or the farmers in one locality, to do what others with no better opportunities have done for themselves, and what these can do for themselves without the aid of the government.

Along streams where there is unappropriated water and lands to which this water can be brought, the situation will not be materially changed from that now existing. The plan proposed is the one which has been quite generally followed by canal companies. These companies have built their works and sold water rights for prices which were supposed to repay the cost of construction, with a profit, and have charged an annual maintenance tax which pays for operating and maintaining the works. When a certain proportion of their water rights are sold the works are turned over to the purchasers to be operated by them. Some of these canal companies have owned the lands to be reclaimed and some have built works to water government lands. The water rights are sold on long time and easy terms. There are canals now in operation, with plenty of water and plenty of unreclaimed land, offered under the most liberal terms, which cannot get settlers, although agents are constantly in the field trying to secure them. The plan outlined in the bill provides that the settlers shall repay the cost of construction, and that is what they have been unable to do under the private canals, or what they think they cannot do. The argument urged in favor of such construction by the government is that it is no great hardship if the cost is not returned to the government for many years, and that the general benefit will justify the expenses; while private capital gets no return from the general good, and must therefore, sell its water rights within a limited time or fail. The canal companies have generally been financial failures, but settlement under them has gone on gradually, and successfully from the standpoint of all but the investors. This settlement

has, however, been extremely slow. There is no apparent reason why the development under government works would be more rapid. It would, however, be going on over a larger range of territory, and the whole result would be greater.

The great cry of the promoters of government construction has been the making of homes on the government lands for those of our population who have nothing with which to obtain homes but their ability and willingness to work. As stated above, a large part of the lands which can be reached has passed from the control of the government; it has also been pointed out that there are lands with a water supply provided, which can be had by these people on as easy terms as will be asked by the government under the proposed plan. As a measure for disposing of the public lands, or for providing cheap homes, the bill as passed by the senate has nothing to recommend it. As an aid to the gradual development of the West, it will doubtless succeed unless the slowness of the progress made leads to such a change of sentiment in Congress as will cause works to be left to go to ruin after being begun.

FREE GOVERNMENT WORKS.

The third plan under which the government may undertake irrigation works is the building of reservoirs on the headwaters of streams, and the turning of the stored water into the streams during times of low water, to be taken out under existing rights or to be appropriated under existing state laws; and the building of canals from which water may be taken as though they were natural streams.

This is the plan as to reservoirs recommended by President Roosevelt in his message:

> Where their purpose (reservoirs built by the government) is to regulate the flow of streams, the water should be turned freely into the channels in the dry season to take the same course under the same laws as the natural flow.

This recommendation leads to the discussion of existing rights to water. In all the arid states rights are decreed in terms

of a "continuous flow."[1] That is, a canal company or an individual is decreed to have a right to take a given volume of water, say ten cubic feet per second, from a stream, continuously, or whenever it is needed. On most streams where rights have been adjudicated, the sum of all these decrees far exceeds the discharge of the stream. As an instance, the existing decreed rights to water from the Arkansas river, for which the flow is given above, amount to 4,972 cubic feet per second, while the maximum average flow for any month given is 2,428 cubic feet per second, or just about half the decreed amount. Water is distributed in this way: The person having the first right takes water up to the amount of his decree whenever it is needed; the holder of the second right does the same whenever there is more than enough water for the first right, aud so on down the list. During flood period each takes all he wants, and as the supply becomes less the appropriators are cut off in order, beginning with the latest. At the time the decree referred to was made, there was more water in the stream during flood periods than was needed. Supposing the government had then built reservoirs to store this surplus, and turned the water into the stream during low water, it would have been divided in accordance with the decrees referred to, and might have been all taken by those having the earlier decrees, leaving the holders of more than half the rights no better off than they were before. Those receiving the benefit would have done nothing more than their neighbors, and would be no more deserving of this gift from the government. Where this work is done by private parties the opportunity is open to all, and the one who gets stored water pays the price; and the same would be true under government construction under the bill passed by the senate, although a question as to who should be first entitled to acquire rights might arise in the latter case if the demand exceeds the supply when the works are built. Otherwise the water will be disposed of on the principle of "first come first served," the recognized principle in the acquirement of water

[1] In Utah rights are often decreed to parts of a stream, or to part or all of a stream, for stated lengths of time.

rights. Canal companies have built reservoirs to store most of the flood waters of the Arkansas river, but the situation above assumed represents that existing on most of the streams of the arid region. In all the states, with the possible exception of Wyoming, the companies or individuals receiving this benefit could sell the rights to this new supply of water to their less fortunate neighbors, and in this way, while the efficiency of the stream would be increased, the great benefit would go to the holders of early rights, who need it the least and are best able to supply the water for themselves. As to making cheap homes, or reclaiming government lands, this class of works would be entirely devoid of results.

On streams, the ordinary flow of which has not been used as yet, there is naturally no call for the construction of reservoirs. It has been proposed that the government build canals from the larger rivers which have not been extensively used for irrigation, to reclaim lands where the prospective returns from the lands will not pay the cost of construction; these canals to be treated as natural streams, so far as acquiring rights to water are concerned. Under this system a stream would necessarily be treated as a whole, and a diversion from a canal would be considered a diversion from the stream. In all the arid states except Wyoming and Nebraska the course necessary to obtain a right to take water from a stream is to build a canal and put the water to a beneficial use. In practice, "beneficial use" includes sale or distribution to others, and among appropriators the first in time, is the first in right. There are provisions regarding posting and filing notices stating what is claimed, place of intended diversion, means of diversion, etc., but the only effect of posting and filing these notices is to date the right back to the time of posting rather than to the time of beginning construction, or of putting the water to a beneficial use. In Wyoming and Nebraska rights are initiated on application to state authorities and vested when the works are completed in accordance with permits issued by those authorities, but in all the states, as previously stated, rights to water for delivery to others may be acquired. There

is, therefore, no assurance under existing laws that the water thus brought within the reach of lands needing reclamation will go directly to farmers of small tracts, but the water may go to individuals or canal companies to be by them sold to farmers. In fact, this would probably be the outcome, because, even after the main canals have been built, the individual farmer cannot bear the expense of bringing the water to his land independently. Distributing canals covering several farms each are necessary, and these must be built in advance of settlement.

The carrying out of this plan, like the others discussed, would undoubtedly result in the gradual reclamation of considerable areas of land, but, like the others, would not make homes within the reach of the poor man, nor reclaim any great areas of public lands, as the present owners of lands would naturally be the first to appropriate the water, since they have only that expense, while those taking it for public lands, have also the expense of acquiring the lands.

In the preceding discussion the subject has been treated as if it were possible to tell just what the existing rights to the streams of the West are. In but two states, Wyoming and Nebraska, is this possible, and in those states only on streams entirely within either state. Attention has been called to the decreed rights to water from Arkansas river. Those decrees include only rights in Colorado, and there are canals taking water from the stream in that state which are not included, while the use of the stream in Kansas is entirely neglected by the courts making the decrees. Add to this the fact that the volume decreed is twice as much as the stream ever carries for more than a few days at a time, and it will be seen that the decrees, which are the only record of existing rights, show little as to the actual state of affairs. Again, existing rights cannot be determined by measuring the streams and the canals taking water from them, or the land irrigated. A canal may have a decreed right to ten times as much as it is carrying, or may be carrying ten times as much as it has a decreed right to, and might be able to establish its right to this larger volume as against a later claimant. A canal may be built

to reclaim fifty thousand acres of land, and be granted a right to sufficient water for that area, provided it is brought under cultivation within ten years. This is the plan followed under the "Carey Act" granting lands to states in aid of irrigation. Such a canal might be watering one thousand acres at the time of measurement, and might ultimately establish its right to only a half or a third of the volume allowed to it conditionally. Except in the states named the practice is to build canals where there is thought to be unappropriated water, and use whatever can be secured until someone complains of this use and applies to the courts for redress. The matter will then be taken up by the courts, and canal builders may find that they have rights to plenty of water, and they may find that they have no rights whatever. But there is no way in which this can be determined before the canals are built. As has been stated, Wyoming and Nebraska grant rights to streams, and here prospective builders of irrigation works may, by inquiry, find out just what water may be acquired from any stream. There are localities where it is a well-known fact that there is no water left in the streams, and others where it is equally well known that there is a surplus of water, but a great many streams lie between these extremes.

CONCLUSIONS.

A large part of the lands which can be reached by canals from the streams of the arid region are in private, corporate, or state ownership.

The inability of private enterprise to construct reservoirs and canals has not been demonstrated.

The construction by the government of irrigation works for public lands, exclusively, would be unjust to the owners of lands needing the water.

Where the flood waters are needed for lands already under cultivation it would be unjust and wasteful for the government to store and use the waters for new lands.

The plan proposed by the senate is the plan which has been followed by canal companies, and there is no reason to look for

greater success. It would probably result in the gradual but slow development of the West up to the extent of the water supply. In settled localities it would amount to no more nor less than a loan to farmers on ten years' time, and would reclaim no new lands.

Under existing laws there are not sufficient safeguards against monopoly and extortion to justify the building of free government works, either reservoirs or canals.

No plan but that of free government construction, for the exclusive use of government lands, which is both unjust and wasteful, will make cheap homes, or insure the reclamation of any large area of public lands.

RAY P. TEELE.

WASHINGTON, D. C.

THE CANADIAN BUDGETARY SYSTEM.

THE almost perfect working of the English budgetary system has attracted very wide attention. Economists and financiers admire it in its practical working, while perhaps pointing to some slight deficiencies in theory. And the question is frequently raised: would the system work to equal advantage in other countries under different political and economic conditions? Without pursuing this question in its general application, it may be said that in all its essential features the English system is carried into effect in Canada. The same directness, continuity, effectiveness, and responsibility that attend the preparation, voting, and execution of the budget in the imperial Parliament are features equally paramount in the Canadian practice. The example is afforded of a system, gradually developed through centuries of experience in the old world, being grafted into new world conditions, and working in complete harmony with these conditions, in a country which has reached only its initial stage of development.

REFERENCES: J. G. BOURINOT, *Parliamentary Procedure and Practice; British North America Act*, 1867; *Rules of the House of Commons* (Canada); *Public Accounts; Appropriation Act; Journals of the House of Commons; Auditor General's Reports; Budget Speeches; Audit Act.*

The department of finance in the federal government of Canada is presided over by the minister of finance, who is a member of the premier's cabinet. His is the only political office in the department. The deputy-minister and the staff are under the direction of the minister, and may be removed by him; but they are not removed on account of a change of government. It is the aim of the government to secure the greatest efficiency possible in the civil service, and to have it as far removed from partisan interference as is practicable.

In its preparation the budget in Canada is in the hands of the finance minister and his colleagues in the cabinet. It is

true that no money may be appropriated and no tax may be levied by parliament except on the recommendation of the governor-general, the representative of the sovereign. But paradoxical as it may seem, the governor-general has really no relation to the budget. The explanation is that any recommendation he may make is not his own, but is initiated by a responsible cabinet, the members of which are members of the house of commons or of the senate, as well as heads of departments of government. The cabinet is really a committee of the house, and its responsibility to the house, and consequently to the country, is absolute and unlimited.

That the preparation of the financial measures of the government is in the hands of the cabinet is important, not only because of this direct responsibility that is imposed, but also because it devolves upon the members of the cabinet as constituting the government to put the budget into execution. In these circumstances untried theories have no place practically in the proposed legislation. The cabinet feels its responsibility from the very initiation of the estimates to the spending of the last dollar of the appropriations, and therefore any new theories or devices are well considered in regard to their practical application to the affairs of the country before they are given a place in the fiscal proposals.

Again, the government, and particularly the minister of finance, is acquainted with the needs of the country as a whole, as well as the demands of particular sections, and hence is in a position to supervise intelligently the preparation of the estimates in regard to their territorial distribution. The cabinet consists of a body of men who are drawn from the various provinces and who have cognizance of, and who to a large extent represent, the demands of the provinces from Nova Scotia to British Columbia. As a committee, therefore, it is well qualified to give judgment on the country's requirements and to advise the governor-general in regard to financial matters.

How, then, does this advice originate? The minister of finance, who is a member of Parliament as well as of the gov-

ernment, takes the initiative by issuing in the autumn of each year a circular letter which he addresses to the other ministers. This letter requests them as heads of departments to send to the minister of finance estimates for the fiscal year beginning the first of the next July. There is no fixed time by which these estimates must be in the hands of the minister, but the practice has been invariably to have them filed during the latter part of November or the early part of December. The fact that there is no particular date set for the meeting of Parliament tends to induce dilatoriness on the part of the officers of the departments, and any Canadian minister of finance would consider himself highly favored if the bulk of these estimates were before him by the first of December. When there is the possibility that the meeting of Parliament may be delayed until late in February or even until March, it is difficult for the finance minister to impress upon delinquent departments the necessity of especial haste in the preparation of estimates.

But the main estimates are in the hands of the finance minister in sufficient time to enable him to scrutinize them carefully before he submits them to the cabinet for their consideration. It may be assumed that each department has asked for funds sufficient to provide for its actual requirements. On the other hand, it is equally safe to say that for their internal administration the departmental requests are not largely in excess of what will be needed. Indeed, it is the practice in this regard to ask for about 10 per cent. more than will be required, in order to be on the safe side. For example, in 1900–1 the finance department spent spent 91⅓ per cent. of the amount appropriated for its use.

The finance minister scans the estimates with a very critical eye, looking out particularly for increases. He has obtained also from the revenue departments, the customs and other revenue branches, the amounts of estimated income for the next fiscal year, based on the supposition that taxation will remain the same. With the information which this gives him he feels the necessity of adjusting expenditure to revenue. Hence he is

frequently under the necessity of exercising his prerogative in regard to cutting down the estimates as submitted by his colleagues. He satisfies himself that all increases are for expenditures which are necessary before he allows them to pass. If the demands of a department are out of proportion to its needs, or, if on any other account revision is necessary, it is the duty and the practice of the finance minister to point out to the head of that department that such revision is desirable.

The Canadian finance minister occupies rather a unique position in regard to the preparation of the estimates and the maintenance of the equilibrium between revenue and expenditure. The functions of his office under existing conditions are not precisely those of the chancellor of the exchequer in England. Much less are they identical with those of the ways and means committee of the United States house of representatives. And yet, in a large measure, they combine the duties of both. Like the chancellor of the exchequer, it is the duty of the finance minister of Canada to devise legislation in order to raise sufficient revenue to meet the expenses of government, and, like the chairman of the ways and means committee at Washington, he must so adjust the tariff as to afford protection to home industries. The English and American fiscal policies are built on widely divergent lines, the former attempting to raise only sufficient revenue to meet expenditures without regard to the protection of manufactures; the latter aiming far beyond the point of the adjustment of taxation to the requirements of the public service. The predominant motive in the American system is the protection of the manufactures of the country, and in carrying out this policy large surpluses accrue, little attempt being made to adjust receipts to expenditures. The Canadian tariff is a low protective tariff, and in comparison with the American it may be called a revenue tariff affording incidental protection. In adjusting taxation, therefore, the finance minister executes the office of the chancellor of the exchequer when he adjusts the revenue to meet the required outlay; and likewise he performs a similar office to that of the congressional ways and means com-

mittee when he makes tariff proposals with a view to the protection of home manufactures.

When he has considered carefully the estimates, the finance minister places them before his colleagues in cabinet council, There the ministers examine them item by item, and discuss fully matters relating to revenue and expenditure. Items of political significance receive due attention, those affecting one part of the country are weighed against those affecting another part. It is necessary also to decide between important projects for the development of the resources of the Dominion. The cabinet directs its attention first to fixing the limits within which the expenditure must be contained for the next fiscal year. If expenditure is to be kept within the bounds of revenue, obviously any large projects will be entered upon only after mature deliberation and the consideration of other claims. The necessary and inevitable result is that some proposed expenditures must be eliminated, not because they are undesirable or because they are not urgent, but because of the pressing demands of necessary things. Thus the cabinet has the determining voice not only in regard to the amount of particular items of the estimates, but also in regard to the total expenditure for the year, as well as the territorial distribution of that expenditure. Furthermore, it accepts the responsibility of apportioning to each line of the public service the approximate amount that shall be devoted to that service. That is to say, if, for example, the public works department desired to increase its outlay on public buildings, the question of this proposed expenditure would come up in cabinet council, and its relative importance to other proposals would be discussed and a decision reached by the cabinet as a whole. A minister may champion an increase of expenditure in his department, but his colleagues regard his claim in view of the aggregate amount to be spent and the demands of the several other departments.

The estimates are submitted to Parliament very shortly after the opening of the house. This year (1902) the house met on Thursday, February 13, and the estimates were brought down on Monday, February 17, that is, on the second working day of

the session. There are two main divisions of the estimates, viz., permanent and annual. The permanent are those which are provided for and fixed by statute, and which it is not expedient year by year to subject to political discussion. They represent about three-eighths of the total expenditure. They include such items as the costs incidental to the collection of the revenue, the annual interests of the public debts of the several provinces at the time of confederation, the salary of the governor-general, the principal and interest on the loans raised for the purpose of constructing the Intercolonial Railway, of paying the Hudson's Bay Company, the sinking fund to provide for these loans, etc.; the yearly salaries of the judges of the supreme court and the exchequer court, and grants payable to the several provinces of the Dominion.[1]

The annual appropriations are for all other purposes of government. They are submitted to the house on the motion to go into committee of supply. The first matter the house deals with each session is the governor-general's speech, and immediately after it has been agreed to the finance minister makes a formal motion to the effect that on a certain day the house will resolve itself into a committee to consider the supply to be granted to His Majesty.[2] Before the house actually goes into supply, the finance minister brings down the estimates by message from the governor-general. He then moves "that the said message, together with the estimates accompanying the name, be referred to the committee of supply."[3] In this committee, which is constituted by all the members of the house of commons, the chair is taken by a permanent chairman of committees, and a member is not restricted to one speech on any question before the committee, there being perfect freedom of discussion. The estimates are arranged into votes or resolutions, and appropriate particular sums for particular purposes. They are submitted to the house on the joint responsibility of the cabinet. A vote to reject or to refuse to consider

[1] *Audit Act*, Art. 3.

[2] *House of Commons Journals*, 1874, p. 10; 1876, p. 55. [3] *Ibid.*, 1876, p. 68.

the estimates would be considered equal to a vote of non-confidence in the ministry, and would lead to its resignation. Furthermore, the minister to whose department any particular item applies is under the necessity of making a full explanation in regard to the item, if such explanation is asked for by any member of the house. Hence it is in committee of supply that much financial criticism takes place. From the information placed in their hands members know the amount voted for a particular service the previous year, as well as the amount asked for the coming year. A minister frequently has a very uncomfortable half-hour of it in trying to explain to the satisfaction of a critical and inquisitive opposition some item in regard to which he is not thoroughly informed, or which has been placed in the estimates obviously for political purposes.

Thus the budget in its preliminary stages is a creation of an executive charged with unlimited responsibility. A private member may not move to increase an item in the estimates, to insert a new one, or to levy a tax. The recommendation must come from the ministers through the governor-general. The British North American Act of 1867, Art. 54, provides "that it shall not be lawful for the house of commons to adopt or pass any vote, resolution, address or bill for the appropriation of any part of the public revenue or of any tax or import to any purpose that has not been first recommended to that house by message of the governor-general in the session in which such vote, resolution, bill or address is proposed." This precludes the possibility of the introduction by a private member of a resolution or bill involving, directly or indirectly, the expenditure of public money. A private member may move to strike out an item, or to reduce it, but not to insert a new one. The initiation of all such charges is constitutionally set aside as the function of the executive government. "No principle is better understood," says Bourinot, "than the constitutional obligation which rests upon the executive government of alone initiating charges upon the public exchequer."[1] This recommendation of

[1] *Procedure and Practice*, p. 532.

the governor-general is given by a responsible minister, usually the premier or the leader of the government in the house of commons, in his place in Parliament. The following is an example of the announcement of such recommendation: "Sir Wilfrid Laurier, a member of the King's privy council, then acquainted the house that his excellency the governor-general, having been informed of the subject-matter of this motion, recommends it to the consideration of the house."[1]

Again, in order to place all monetary legislation in the hands of the people, it is enacted in the B. N. A. Act, Art. 53, "that bills for appropriating any part of the public revenue shall originate in the house of commons." Such bills may not be introduced in the senate. The senators are appointed for life and hence they do not feel the direct responsibility which is felt by the members of the house, who for re-election must go to their constituents and account for their parliamentary conduct. The senate may, and does discuss matters of supply, but it does not attempt to amend the supply bill. The exclusive right of the house of commons to deal with matters of supply is also recognized by the governor-general, in his speech from the throne at the opening of each session of Parliament, when he addresses the members of the house of commons alone in referring to the supplies which will be required for carrying on the government of the country.[2] The speech as a whole is addressed to the members of the house of commons and of the senate jointly, but a special paragraph is inserted in which the members of the house alone are addressed. In the speech for 1902, for example, the paragraph referred to is as follows: "Gentlemen of the house of commons: The public accounts for the last year and the estimates for the succeeding year will be laid before you without delay." The insertion of this paragraph is a very direct and pointed recognition by the crown of the exclusive right of the house of commons to deal with financial legislation. In all other matters the senate is invited by the speech to participate in consideration and legislation, but to

[1] *House of Commons Journals*, 1901, p. 317. [2] *Ibid.*, 1901, p. 15.

the more representative house is delegated the responsibility of voting supplies and imposing taxation. Not only does the British North America Act specifically state that money grants must originate in the house of commons, and the crown recognize this in the speech from the throne, but the house itself has incorporated the following among its rules and orders: "All aids and supplies granted to His Majesty are the sole gift of the house of commons, as it is the undoubted right of the house to direct, limit and appoint in all such bills, the ends, purposes, considerations, conditions, limitations, and qualifications of such grants which are not alterable by the senate."[1]

Thus it is established beyond all question that the representatives of the people duly elected to Parliament have the sole right to spend public money and to lay taxes upon the people. But their control goes much farther. It is not only a general control of the amounts to be raised and spent, but it is a control over each individual item introduced. In 1880 the house adopted the following orders:[2]

1. The description of the service for which the vote is given should be as definite as practicable, so that no one vote may be applicable to the same purpose for which another vote is given.

2. The description of the subheads into which votes are divided should be as definite as is practicable, so as to avoid questions as to the particular subhead to which any particular item of expenditure should be charged.

3. The supplementary votes should be divided as near as may be into the same subheads as the main votes to which they are supplementary.

4. Where large votes are taken, it is desirable to divide them into subheads, so as to give in the estimates as much detailed information as possible.

5. Votes which are intended as grants to institutions or individuals should be distinctly so specified; and no vote should be considered as so intended, unless so specified.

6. The supply bill should contain the subheads of the votes on which it is based.

7. It is the duty of those responsible for the estimates to make the calculations on which the main vote and its subdivisions are found carefully and closely as practicable and their attention to this duty will be increased by their being expected to furnish reasons for discrepancies.

[1] *Rule House of Commons* 89. [2] *House of Commons Journals*, 1880, p. 183.

There is still another rule of the house which safeguards the public interests. It is designed to prevent the passage of any bill for the spending of any money, before the members have had sufficient time to consider it fully:

> Rule 88.—If any motion be made by the house for any public aid or charge upon the people, the consideration and debate thereof may not be presently entered upon, but shall be further adjourned until such further day as the house shall think it fit to appoint; and then it shall be referred to a committee of the whole house, before any resolution or vote of the house do pass thereon.

This rule provides a check on any hasty or ill-advised legislation that may be introduced.

The procedure in committee of supply is that each vote is taken up separately and discussed. Then it is put by the chairman and passed as any other motion. Each item in a vote may be taken up separately and discussed if the house so desires. The only limit to the discussion is that it must be relevant to the resolution under consideration. When the committee reports to the house with the speaker in the chair, the resolutions are passed in the regular way, receiving three readings before they are adopted by the house. Even at this late stage it is possible to reduce items, but not to increase them. If it is found that a grant is insufficient for the public service for which it is required, a supplementary vote must be passed. An example of this is afforded in the session of 1883. The committee of supply reported a vote of $8,000 for the purchase of a property for the government. It was pointed out that the vote was insufficient and that the outlay would be $11,000 instead of $8,000. A suggestion was made to the effect that the premier should give the recommendation of the crown and increase the vote before this particular item of the report was reached. It was seen, on consideration, however, that such a proceeding at that late stage would be irregular, and that the only proper course was for the premier to bring down a supplementary vote in committee of supply for the balance of $3,000.[1] Before the close of each

[1] *House of Commons Debates*, p. 1316; BOURINOT, *Procedure and Practice*, p. 562.

session all the votes or resolutions of supply are merged into one bill, which is passed in the regular way, and is known as the Appropriation Act. To this act the governor-general gives the royal assent.

The committee of ways and means, as well as the committee of supply, is formed at the commencement of each session.[1] It is the usual practice to deliver the budget speech on motion by the finance minister to go into committee of ways and means. There have been occasions when the budget has been delivered in committee, but this practice has been discarded in recent years. The procedure in ways and means is much the same as in supply. When tariff changes are made they are proposed in the form of resolutions, which receive the sanction of the committee, and are then reported to the house in due time and pass three readings there before they become law. Amendments may be introduced while the house is giving consideration to the resolutions from the ways and means committee, but no motion would be considered for the imposition of a new duty or for raising the rate on one already imposed. A member may, however, voice his disapproval of a tax by proposing another scheme of taxation for the same amount as the one before the house.

The budget speech is one of the most important features of the parliamentary year. Perhaps no other event is awaited with so much interest, not only by Parliament, but by the whole country as well. The manufacturer, the capitalist, the artisan, the merchant, the farmer — indeed all classes await very eagerly the announcement of the government's policy in regard to the tariff. This announcement is of concern particularly because the fact that the tariff is low and the country is very sensitive to the slightest change in the duties. In 1901 the average rate on all imports was 16.41.[2]

The budget statement is generally delivered in March, and covers three years. The actual receipts and expenditures of the last completed year are discussed, noting increases and decreases from previous records. The finance minister discusses briefly in

[1] *Canadian Commercial Journals*, 1874, p. 10. [2] *Budget Speech*, 1901.

the speech the causes that have led to such fluctuations, and their effect on the financial standing and public debt. The amount of the surplus or deficit is clearly set forth, and is compared with other years. The expenses on current account are differentiated from expenses on capital account, and the state of the public debt is shown.

Then the speech proceeds to deal with the current year, that is with the year closing the next 30th of June. The minister knows what the revenue has been for say eight months, *i. e.*, from July 1 to March 1, and he knows the expenses of government for the same period. He is therefore in a position to estimate fairly accurately the outcome of the year's operations closing June 30; and he gives in his speech the result of his forecast, showing the probable total revenue from all sources, and over against this he sets the probable current expenditure, the expenditure on capital account, and the supplementary estimates not yet brought down, and with these figures he is able to state his estimate of the surplus or deficit as the case may be.

Furthermore, the year beginning the first of the next July is also discussed. The main estimates for this year will have been submitted to Parliament before the budget speech is delivered, The inevitable supplementary estimates will follow and will augment these estimates materially. If any special cause exists for increased expenditures not provided for, the finance minister points this out in his speech. For example, in the budget speech of 1901 Mr. Fielding noted the fact that in addition to the main estimates a considerable sum would be required in the shape of bounties on iron and steel. He had no means of forecasting the exact amount that would be required, as that would depend not on the amount of the bounty per ton, but upon the quantity that would be produced.[1]

In regard to revenue the minister scans the commercial and industrial horizon, and tells Parliament what he sees. He realizes the fact that as a sagacious financier his reputation is at stake, and he endeavors to read aright and to explain to Parliament

[1] *Budget Speech*, 1901.

the signs of the times. As an example of such a statement the following sentences from the budget speech of 1901 may be quoted: "As to the revenue," said the finance minister, "I do not expect that we can keep on at the rate of increase that has been so marked during the last three or four years. I think we have probably now reached the crest of the wave of prosperity. I do not expect that we shall have any serious reverses, but I do not think that it is reasonable to expect that we can go on increasing our business as rapidly as we have done during the past few years, etc."[1] Not much attempt is made in the way of definite prediction for the year in the advance of the current fiscal year, beyond general statements in regard to the outlook. Following such predictions there appears in the budget speech a discussion of Canada's trade export and import, etc., accompanied by the announcement of any tariff proposals upon which the government may have decided.

In respect of the estimates as a whole and of the budget, it may be said with fairness that they are as accurate as may be expected in a country which covers such an immense area. The whole preparation of the estimates is carefully made and just as carefully scrutinized by the minister of finance and in cabinet council. They are subjected to searching criticism and often to much argument and opposition in committee of the whole house, and when they are finally passed they represent fairly accurately the sums required for the various services. There is always a certain amount of the appropriations granted by Parliament that is unexpended, and there are certain lapses, but generally speaking the sums voted are pretty close to the requirements and the percentage of lapsed balances and unexpended appropriations is not very large. Any appropriations that may be unexpended at the end of the financial year lapse and are written off,[2] and must be re-voted before they may be used.

In regard to the finance minister's predictions it may be said that he usually exercises what Stourm calls sagacity and integrity—sagacity to see clearly into the future and integrity to

[1] *Ibid.* [2] *Audit Act*, Art. 37.

declare fearlessly what he sees. The budget statement is comprehensive and yet it is clear and simple. There are not too many classifications and the statements of the minister of finance are clear and to the point. The ordinary reader is able to gather from the budget speech an intelligent idea of the country's revenue and expenditure, the condition of the public debt and the state of trade. The statement is brief and lucid and no attempt is made to conceal from the country any unfavorable conditions which may exist already or which may be foreseen. Without question the judgment of the finance minister has been at fault at times, but in these instances it has been mistaken judgment in regard to future economic conditions rather than any desire to conceal real existing conditions, that has upset the calculations. For example, when the government in 1891 took the duty off raw sugar it is quite probable, indeed it is a fact, that neither the finance minister or any other member of the government anticipated or could foresee the lean years of 1893–4. The expenditure at this time was within very reasonable bounds and it was felt that a reduction of the sugar duties could be made safely. But had the depression of two years later been anticipated. when in amount the business failures increased 52 per cent.,[1] it is evident that the reduction would not have been made.

In regard to timeliness, the Canadian budget fulfills all reasonable demands. The fiscal year opens June 1st and the budget speech is delivered usually in March. In 1900 it was delivered on March 23d, and in 1901 on March 14th. In 1901 the actual revenue and expenditure as given in the budget speech was brought down to March 10th, *i. e.*, to within four days of the time the speech was given in the house. Thus the position of the finance minister is one of marked advantage as there are usually less than four months to estimate for in the current year when he makes his annual budget statement while the next fiscal year begins from three to four months ahead. Perhaps the only

[1] Business failures, 1892, $11,560,210; 1894, $17,724,633.—*Budget Speech*, 1890, Diagram 11.

country that is better off in this respect is England. There the financial year begins April 1st and the accounts for the year are made up and the chancellor of the exchequer knows the actual receipts and expenditures for the year just completed when he makes his estimate for the coming year in the budget speech, usually about April 5. He has actually begun the year for which he is estimating. In the United States the estimates are made by the departments early in the autumn and are transmitted to Congress by the Secretary of the Treasury in December, seven months before the opening of the fiscal year to which they apply.

In Canada the supplementary grants, though comparatively small, play a somewhat important part in the financial legislation, and it is in regard to them that the government receives most criticism. Theoretically supplementary appropriations should have very little place in a well-ordered financial system. There is always a temptation for a government to withhold from Parliament a complete statement of its actual needs, if supplementary appropriations are to follow the main budget, in order to make a show of economy. This is particularly so in a year before an election. If Parliament had knowledge of the total requirements of the government it would be inclined to cut them down. Thus, by the judicious use of the supplementary grants the ministry is able to get more money out of Parliament than it could without them. The party in opposition usually advocates the reduction of supplementary estimates to a minimum or opposes their use altogether, but in actual practice both parties have found them necessary. One reason for this is the great extent or area of the country. The members of Parliament from British Columbia, for example, may have some pressing demand for expenditure in that province, and in all probability they do not approach the minister of finance or even the minister under whose department the appropriation is to be made, until they assemble in Ottawa for the meeting of Parliament. If the government accedes to their request and decides to ask Parliament for a grant, it must be brought down as a supplementary esti-

mate, because the main estimates will have been completed and already laid before Parliament. The great distance to be traveled by these members prevents their appearance at the seat of government, except when Parliament is in session. Similar appeals come from other quarters. Members frequently succeed in obtaining grants for their constituencies while Parliament is in session; and to these circumstances are due many of the supplementary estimates. Unforeseen events, also, occur which demand recognition. For example, in 1900 a destructive fire occurred in Ottawa and Hull, and many thousands of people were left homeless. The government brought down a supplementary estimate for $100,000 for the relief of the sufferers.[1] On the whole the supplementary grants are kept within reasonable bounds. They run three, four or five millions per year, and eight or ten millions would be considered a very heavy supplementary charge.

In dealing with public money, the finance minister acts also in the capacity of receiver-general. And it is provided that "all public moneys from whatever source of revenue derived, shall be paid to the credit of the account of the minister of finance and receiver-general through such offices, banks or persons, and in such manner as the said minister from time to time directs and appoints.[2] The audit act also provides that the treasury board, a supplementary committee of council of which the finance minister is chairman, may appoint the times and mode in which persons charged with the collection of money shall make payment to the government, with the provision that payments must be made at least once every month.[3] The treasury board has adopted a regulation to the effect that all collectors are required, when possible, to make a daily deposit of their receipts to the credit of the receiver-general unless such receipts are under the sum of twenty-five dollars.[4]

The public money is kept in consolidated account in the Bank of Montreal, and the routine by which collected funds reach

[1] *Sessional Paper*, 1900, 2b. [2] *Audit Act*, Art. 25. [3] *Ibid*, Art. 26.
[4] *Treasury Minute, Auditor-General's Report*, 1900, B. 23.

that account is interesting. The instance of cash collected by a collector of customs will afford a good illustration. He is given directions to pay his gross receipts into a bank which is authorized to receive government money. The bank issues to him a receipt in original, duplicate and triplicate and a draft on its branch at Ottawa. The officer retains the original receipt thus issued by the bank as his own receipt, and forwards to the customs department at Ottawa the duplicate, triplicate, and draft, together with a statement of the collections which he has deposited. The customs department keeps the duplicate and transmits the triplicate and the draft to the finance department, which holds the triplicate as a voucher. The amount of the deposit is credited to the customs department, and the draft is deposited into consolidated account. In cases where money is received at a place where there is no bank into which it can be paid conveniently, it is remitted in such manner as the receiver-general may direct, and accounts of such money are rendered to the auditor-general in such form as the treasury board may prescribe.[1]

In regard to paying out public money, it is the invariable rule that no warrant shall be issued for any sum whatever that has not been voted by the house of commons, or by an act of Parliament. When there is such a resolution or statute, the governor-general from time to time under his signature, countersigned by a member of the treasury board, may authorize the minister of finance and receiver-general to issue from the moneys thus appropriated the sums required to defray such expenses, not exceeding the amount of the sums granted for the particular service.[2]

In general there are two ways in which moneys are paid out. In the first place any department may apply to the minister of finance for a letter-of-credit for a lump sum out of the funds that have been grated to that department by Parliament. The credit is issued on the Bank of Montreal or on other banks charged with the expenditure of public money, and the depart-

[1] *Audit Act*, Art. 28. [2] *Ibid.*, Art. 29.

ment issues its own cheques for the running expenses, the cheques being signed by the deputy minister and the accountant of the department. Statements in duplicate of all moneys paid out under these credits must be rendered. One statement together with the cheques that have been issued goes to the auditor-general, and the other to the minister of finance. Thus the auditor-general not only has the departmental statement of the money paid out, but he also has the endorsed cheques which prove that the money has been received by the person to whom it was due. Being satisfied with the correctness of the statement, therefore, the auditor-general requests the minister of finance to cause cheques to be prepared to reimburse the banks for the advance thus made. These cheques are signed by the auditor-general, or by their respective deputies.[1] A department may not overdraw its line of credit at a bank. By an order in council of July 7, 1892, it is the "duty of the accountant of each department to inform the deputy minister of the department whenever a cheque which is about to be issued will overdraw an appropriation or letter-of-credit, so that such a cheque may not issue until parliamentary or other authority as provided by the audit act, is obtained in the one case, or an additional credit in the other case."[2] In the second instance a cheque may be issued by the department of finance, and in this case an audit is made before the cheque is issued.

The Canadian audit is parliamentary. The auditor is appointed by the governor-general under the great seal of Canada for the complete examination of the public accounts.[3] His salary is fixed by statute, and he is paid out of the consolidated fund. His tenure of office continues during good behavior, and he is removable by the governor-general on address of the senate and house of commons.[4] The internal working of his office and the rates for the audit of the public accounts is left largely in his own hands—subject to the approval of the treasury board. Daily accounts of all govern-

[1] *Audit Act*, Art. 30.

[2] *Auditor-General's Report*, 1900, p. B. 4.

[3] *Audit Act*, Art. 21.

[4] *Ibid.*, Art. 22.

ment receipts and deposits must be rendered to him.[1] In regard to the issue of checks it is the duty of the auditor to see that there is a direct parliamentary appropriation before any cheque is issued,[2] and no cheque may be issued except on his certificate that there is parliamentary authority for the expenditure.[3] To this there are three exceptions: (1) If on appeal from the ruling of the auditor-general that there is no parliamentary appropriation for the issue of a certain cheque, the attorney-general of Canada expresses the opinion in writing that there is such authority, the treasury board may authorize the deputy-minister of finance and receiver-general to prepare a cheque irrespective of the auditor-general's report. (2) If an accident happens to a public work or building when Parliament is not in session, or an immediate outlay is required for repairs, or if any other occasion arises where an unforeseen expenditure is urgently and immediately required, the governor-general in council may issue a special warrant for the amount estimated to be required. This amount must be placed in a special account and cheques may be issued against it in the regular way. (3) In the case of the auditor-general's refusal to certify that the finance minister's cheque may be issued, on the ground that the amount is not justly due or on any other ground than that there is no parliamentary authority, the treasury board shall be appealed to and decide the question in dispute.[4]

In general, before he may authorize any payment to be made the auditor-general must satisfy himself, (1) that there is a definite parliamentary appropriation; (2) that such appropriation is not exceeded; (3) that the officer under whose special charge the public work is done has certified that such work has been done, or materials have been supplied, as the case may be; (4) that the officer has certified also that the price charged is according to contract, or if not covered by contract, that it is fair and just.

In regard to the annual report of the accounts, it is the duty of the finance minister to transmit to the auditor-general by the 30th of September every year, an account showing the issues

[1] *Ibid.*, Art. 28. [2] *Ibid.*, Art. 31. [3] *Ibid.*, Art. 32. [4] *Audit Act*, Art. 32.

made from the consolidated revenue account in the financial year ended on the 30th of June preceding for services directly under his control; and such accounts and the report of the auditor-general thereon must be laid before the house of commons by the minister of finance by January 31, or if the house is not sitting then, within one week of the opening of the session of Parliament.[1] If the minister fails to report to the house of commons within the time prescribed, it is the duty of the auditor-general to present the report forthwith.[2]

Thus in the preparation, execution and control of the Canadian budget there is a complete effective system, a system which will stand comparison with that of any other country in the world. The control of the people over the country's financial legislation is satisfactory. The checks imposed are sufficient to prevent the enactment of money bills by any man or by any set of men short of a good working majority in the house of commons. Perhaps in no other country, not even excepting England, do the details of estimates receive such close scrutiny. The audit is independent of any minister, of any department, or even of the whole cabinet. The auditor-general maintains his position firmly, and to say that his audit is effective is but to describe the normal condition of affairs.

R. C. MATTHEWS.

CAMBRIDGE, MASS.

[1] *Audit Act*, Art. 35. [2] *Ibid.*, 49.

NOTES.

A. MARSHALL ON ECONOMICS FOR BUSINESS MEN.

THE creation of scholarships for Americans at Oxford by Cecil Rhodes suggested to many that, so far as economics was concerned, English universities offered little or no inducement for American students. Must there not be an awakening of Oxford to the demands of modern learning if these scholarships were to be properly filled? At the same time, the comparisons daily drawn between the relative industrial growths of Germany, Great Britain, and the United States, also drew attention to the comparatively little attention given to economic studies in English institutions of learning. If England is to hold her own in industry she must not fall behind in economic education. In fact, the same problems have been forcing themselves on English universities which have been agitating our own, although we have, in American fashion, made more rapid progress in carrying out our plans than have the English.

Professor Alfred Marshall, the first of English economists, has very recently expressed himself on the relation of economic training to England's[1] industrial future; and his opinions upon the proper aims of an education suited to men of affairs, and the subjects to be studied, have a very pertinent bearing upon the experiments now being tried in American universities. In his opinion, "Every university must consider from time to time whether its scheme of study and teaching is adequate to present needs."

Today a student in economics at Cambridge, by the best route, should give himself in the first two years to Part I of the Historical Tripos, and then follow that with Part II of the Moral Science Tripos. But much of the first part is naturally given to mediæval history; the examination by two different boards could not be satisfactory; and the necessary appearance of one economist among the examiners is inadequate in view of the accepted fact that "economics is too large a subject for any one person to examine well in the whole of it." Moreover,

[1] *A Plea for the Creation of a Curriculum in Economics and Associated Branches of Political Science, addressed to the Senate of Cambridge University.* April 7, 1902.

Professor Marshall holds, "no sound and realistic study of economics can be compressed into a three years' course with mental science." Certainly the opportunities for thorough training in both the theory and practical workings of economics are very much greater today in this country than in England, even with the recent creations at London, Birmingham, Owens College, and elsewhere.

As to the relation of economic studies to national welfare, Professor Marshall says:

> In the United States, in Germany, and elsewhere, great numbers of business men and Government officials have studied economics at the universities, and have thus learnt to consider particulars in relation to general principles. They are quick to see how the results of their experience may be serviceable to the public, and to make clear to others what they have learnt from life. But such men are rare in England.
>
> And yet in England, as elsewhere, economic and social considerations are acquiring an ever-increasing influence over thought and action. The Legislature, the Executive, and even the Diplomatic Corps of all countries of the modern world are often occupied with economic issues half their time. None of these issues are quite like those of old days. Many of them are entirely new. And, in spite of the great advance of historical knowledge, the present age has to solve its own economic problems for itself, with less aid from the experience of the past than has been available for any other age. The causes which have made practical economic problems occupy so large a part of the attention of thoughtful men of all classes are mainly the same as those which have moved these problems away from the experience of earlier times. Among the most prominent of them is the rapid extension of international relations.
>
> The increase of wealth and the quickening and cheapening of means of communication has made every country more sensitive to the economic movements of its neighbours; and the term "neighbours" is ever obtaining a wider significance, partly as a result of expansion of empires across the ocean until their frontiers march together in all quarters of the globe. Peace and war have long been governed mainly by the prevailing opinions, true or false, as to national interests and international rivalries in distant fields of commerce, actual and potential. But it is only recently that dependence on distant sources of supply for food and raw produce has made England's continued existence depend on her keeping pace with the forward economic movement of nations against whom she may need to measure her force. In fact England is not, and probably never again will be, completely mistress in her own house. She is not free to weigh the true benefits of a higher culture or a more leisurely life against the material gains of increased economic

vigour, without reference to the rate at which the sinews of war are growing elsewhere.

In the seventeenth century Dutch writers boasted that ten of their countrymen in a Dutch vessel would work as much trade as twenty of any other nation. In the first half of the nineteenth century we could boast that ten of our countrymen could do as much in almost any branch of industry as twenty foreigners, because they were better fed and equipped with better appliances. But as the century wore on, the shackles of political despotism were loosened on the Continent; and when 1871 had seen the close of the wars in Western Europe, there grew up a generation of workers who turned their increasing command over nature to account in providing the two sources of energy — better food and better education. A great part of our working population was already fairly well fed; and we turned our growing wealth to less good account. Our education has improved very slowly; and our physical energy, though perhaps on the whole as great as ever, is certainly less relatively to that of other northern nations than it was even half a century ago, while there has perhaps been some decline in our willingness to exert ourselves. We are no longer at the high premium at which we were for those operations in iron works, etc., which require exceptional powers of endurance; and in manual skill we have been nearly overtaken by several nations who were far behind us. Our great store of wealth has given us an advantage; and it is increasing as fast as ever. But, after deducting land, it is even now less than ten years' income; and we should quickly be passed by rivals still some way behind us, if their productive energy were a little greater than our own, and their mode of living a little more sparing. Thirty years ago it was expected that the beginning of this century would see the white population of the British Empire greater than that of the German; but this hope has been disappointed. If similar changes continue for long, and go much further, our surplus of revenue over expenditure, available for naval and military use, will be less than that of Germany.

But, urgent as is this study of the causes of "the wealth of nations" in connection with political stability, it is even more urgent in connection with the quality of life. The present age is indeed a very critical one, full of hope but also of anxiety. Economic and social forces capable of being turned to good account were never so strong as now; but they have seldom been so uncertain in their operation. Especially is this true of the rapid growth of the power and inclination of the working classes to use political and semi-political machinery for the regulation of industry. That may be a great good if well guided. But it may work grave injury to them, as well as to the rest of the nation, if guided by unscrupulous and ambitious men, or even by unselfish enthusiasts with narrow range of vision. Such persons have the field too much to themselves. There is need for a larger number of sym-

pathetic students who have studied working class problems in a scientific spirit; and who, in later years, when their knowledge of life is deeper, and their sense of proportion is more disciplined, will be qualified to go to the root of the urgent social issues of their day, and to lay bare the ultimate as well as the immediate results of plausible proposals for social reform.

For instance, partly under English influence, some Australasian colonies are making bold ventures which hold out specious promise of greater immediate comfort and ease to the workers. But very little study of these schemes has been made of the same kind, or even by the same order of mind as is applied to judging a new design for a battleship with reference to her stability in bad weather; and yet the risks taken are much graver. Australasia has indeed a large reserve of borrowing power in her vast landed property; and, should the proposed short cuts issue in some industrial decadence, the fall may be slight and temporary. But it is already being urged that England should move on similar lines, and a fall for her would be more serious.

We need, then, to watch more carefully the reciprocal influences which character and earnings, methods of employment, and habits of expenditure exert on one another. We need to see how the efficiency of a nation is affected by and affects the confidences and affections which hold together the members of each economic group — the family, employers and employees in the same business, citizens of the same country. We need to analyse the good and evil that are mingled in the individual unselfishness and the class selfishness of professional etiquette and of trade union customs. We need to study how growing wealth and opportunities may best be turned to account for the true wellbeing of the present and coming generations.

A most interesting part of his presentation relates to the needs of those who are on the way to an active career in business, or in public administration, as follows:

Among the many changes in the methods of business of the present age, two stand out clearly; a tendency towards increased specialization in the work of subordinates; and a tendency towards greater breadth and diminished specialization in the work of heads of business, of directors of companies, and of the higher public officials. Other institutions can give a technical training, suitable for the lower ranks of business more easily than we can, and with less harm to themselves But we are well placed for giving a broad education which will bear directly on the larger management of affairs, and for adding to it that training of personal character which is offered by life at Oxford and Cambridge.

Business men generally recognize the importance of this human training. But they complain that the studies of Oxford and Cambridge almost ignore those questions in which their sons will be most interested in after years; and that they are tempted to lead too easy a life here from the lack of an oppor-

tunity of distinguishing themselves by work that is congenial to them. In so far as this is the case, even those who believe that the older studies give the best possible education to students during their university career will probably admit that we are in fault. I myself think that the higher study of economics gives as good a mental training, its breadth and depth being taken together, as any other study; and that, in addition, it develops the human sympathies in an exceptional degree. But even should this not be conceded, economies may yet claim a first place among university studies if account be taken of the mental activities in after-life which may result from a thorough study of it here.

The shafts and galleries of a mine are a scientific museum and laboratory to a colliery manager who has made a thorough study of geology: his mind grows with his work, and he may increase the world's wealth of knowledge. But if the same man had neglected geology, and pursued here other studies, his B.A. degree would not improbably have been the end, instead of the starting point, of the chief intellectual work and interests of his life. As geology is related to mining, so is economics to general business. A Grote, or a Lubbock may harvest rich fields of thought remote from their business; and a Siemens may work in the field of physics with both hands. But yet there remain many business men whose experiences in later life are likely to be turned to much higher account for themselves and for the world by an early study of economics than by any other training.

The business man who is not only a merchant but also an employer of labour, needs to know the real life of the people. His primary relations with his workmen lie in the exchange of pay for labour. But he is likely to fall short even as profit-winner, and he certainly cannot be a good citizen, unless he has thought and cared much about those sides of his work-people's life and character which are, at most, indirectly reflected in the wages bargain. To learn this from personal contact is ever more difficult for the large employer: he is separated from the mass of the workers by too many strata of subordinates. But broad economic studies will have prepared him to look at the problems of employment from the point of view of the employee as carefully as from that of the employer. Experience shows that this training helps him to see the drift of the complaints urged by his men, and to make concessions quickly and cordially to such as are reasonable. And especially will this be the case if he has combined with his studies that social training which is afforded by the life of a residentiary university of the Anglo-Saxon type.

For such a life draws out the faculties that are needed in the social relations of those who have to deal with large bodies of men and large public interests. On the river and in the football field the student learns to bear and to forbear, to obey and to command. Constant discussion sharpens his wits; it makes him ready and resourceful; it helps him to enter into the

points of view of others, and to explain his own; and it trains his sense of proportion as regards things and movements and persons, and especially as regards himself.

Again, directors of joint-stock companies, and members of executive committees of County and City Councils, are called on to decide questions of broad policy in relation to business affairs of which they have not had much specific experience, even if they happen to be established in business on their own account. While leaving even the larger details to salaried officials, it will be their part to bring to bear broad, strong, well-balanced judgments, insight into character, tact in managing men, and fine intuition as to when to take risks and when not.

And nearly the same thing may be said with regard to those who as public officials, as ministers of religion, as the owners of land or cottage property, or in any other private capacity, will be largely concerned with "the condition of the people question," with public and private charity, with co-operation and other methods of self-help, with harmonies and discords between different industrial classes, and with the problems of conciliation and arbitration in industrial conflicts which are ever assuming larger proportions. Those who are nearest to these conflicts can seldom be perfectly impartial arbitrators; and there is here a special call for men who have received a sound training in economics and in political science, and can bring to bear that elasticity of mind and that quickness of sympathy with aspirations and ideals that are not their own, which it is the privilege of a residentiary university to foster.

The petition that provision may be made for a thorough study here of economics and associated branches of political science, is then based mainly on three considerations. One is, that economic issues are growing in urgency and in intricacy, and that economic causes exert an increasing control on the quality of human life. Another is, that such studies offer abundant scope for the training and the exercise of those mental faculties and energies which it is the special province of a university to develop. The third is, that those who are looking forward to a business career or to public life are likely to be preferentially attracted to a residentiary university which offers a good intellectual training and opportunities for distinction in subjects that will bear on their thoughts and actions in after-life.

It is not suggested that a technical preparation for business should be given here; nor that those looking forward to public life should leave Cambridge provided with ready-made opinions on controverted issues of the day. It is suggested merely that economists should be able to obtain here a three years' scientific training of the same character and on the same general lines as that given to physicists, to physiologists, or engineers.

On the pedagogical question of how to accomplish the given end by a curriculum, he adds:

The economist requires a broad knowledge of the history of his own country and of others which are in close contact with it, especially in recent times; of the structure and functions of the modern state; and of the legal form of those rights and obligations the basis of which lies chiefly in economic conditions.

They need to give their main attention to that marvellous simultaneity of political, social, and economic developments in the modern world, which results from telegraphic and other means of communication; and by which the twentieth century seems likely to be dominated. . . . . The economist needs so large an acquaintance with existing conditions and their nearer antecedents that he cannot spare any of his short three years for a detailed study of remote history. He must train his sense of historical evolution, as best he may, in a careful study of recent events aided by some general knowledge of the broader movements of earlier times.

Although economics is based on observation, yet it has an advantage over most physical sciences. For the student starts with a considerable knowledge of the facts on which economics rests. He is acquainted with the main springs of action in the ordinary affairs of life; he can follow illustrations drawn from the more prominent industries and trades and so on; and he should turn this advantage to full account. He should at once set on a course of reasoning and analysis, obtaining from familiar facts the matter on which his mind can work. He should begin to disentangle the interwoven effects of complex causes. He should learn how things which seem alike and are called by the same name, are often really dissimilar; and how those which seem dissimilar and are called by different names, are often fundamentally alike. He should seek for the Many in the One, and the One in the Many — a task in which skill is to be acquired only by long practice, unless, indeed the student has rare natural genius, or has mastered some branch of physical science. This task should afford the main exercise to his mind from the very first; and should be supplemented by the less fatiguing work of increasing his knowledge of appropriate facts of all kinds.

Of course only those facts should be studied which are strictly necessary to give reality and a sense of proportion to the student's thought. But the scientific treatment of many economic problems requires a much more thorough knowledge of recent and existing conditions than has hitherto been generally possessed by our ablest students.

One chief weakness of the present study of economics in Cambridge is that it is perforce insular: time does not suffice to make it international.

It is becoming the fashion to allot a large place to geography in modern economic teaching. That may be carried too far. But much may be gained by a broad, general study of the economic influences which mountains and watersheds, roads, railroads, rivers, and seas exert on life and work; and of

the geographical distribution of the resources and methods of agriculture, mining, manufactures, and transport. This would prepare the way for an analysis of the interactions of the material and the human elements in the prosperity of cities, of industrial districts, and of nations.

Passing thus from the material conditions of work to the human, the student should, with a similar use of the international comparative method, make a broad and non-technical study of the recent development and the present position of (*a*) The structure of manufacturing and other industries; the causes and results of the development of machinery, and of man's general command over nature; the expansion of joint-stock companies, the growth and working of trading combinations and monopolies, and of railways, &c.: (*b*) Organized markets for goods and for credit; monetary and banking systems; stock exchanges; commercial fluctuations; (*c*) Methods of employment, relations between employers and employees, trade unions, &c.; methods of tenure of land and other real property, and their social results: (*d*) Earnings, nominal and real, of various industrial classes; and the use made of these earnings; housing, the standard of life, &c.: (*e*) The course of international trade, and the mutual interaction of foreign commerce and national industrial character: (*f*) Systems of taxation, central and local: (*g*) Regulative influences exerted by public authority and public opinion over the economic conditions of life and work; and over the supply of water, electricity, the means of transport, and other uses of large public rights: (*h*) Constructive intervention of authority in economic matters; Government undertakings.

Lastly, so far as material is accessible, a study should be made of the socio-economic ideals of different nations.

This larger inductive study would be combined with deeper analysis and more thorough construction. The simpler interactions of commingled causes being now taken for granted, attention would be given to the more complex: and thus the study would become truly realistic.

For nature does not have separate compartments for wages and for profits; for the influence of railway and of banking systems; for the effects of monopolistic combinations, of trade unions, and of international trade competition; for credit fluctuations, and for unemployment and poor relief. The effects of every cause spread in every direction; commingle with other effects, modify them and are modified by them; and become in their turn new causes, reacting on and modifying the conditions by which they were themselves produced.

The more advanced work of the student would thus be given chiefly to the difficulties arising from the breadth of his problems. But part would need to be given to narrower difficulties. Such are for instance some intricate problems relating to currency, to monopoly prices, to railway charges, and the incidence of taxation. Again, some study should be given to valuation

and allowance for depreciation, with special reference to goodwill and other things, the values of which are not directly indicated by market competition: for, in consequence of the modern tendency towards the investment of public and semi-public funds in slippery properties of this kind the very difficult questions connected with them are growing in interest and importance.

Elements of statistical method should be studied early; but mathematical work in statistics should be united with mathematical versions of pure economic theory as an optional subject at the end of the course.

The history of economic doctrine should be another optional subject.

And lastly, though the question is not free from difficulties, some of which lie outside of my province, and though more than three years are already bespoken, I think that perhaps room should be found for the optional study of the principles of those branches of law, the policy of which is mainly governed by economic considerations. Such are laws relating to contract generally, landlord and tenant, joint-stock companies, bankruptcy, patents, monopolies, combinations in restraint of trade, factory and labour legislation generally.

It is indeed a chief part of the work of the economist to consider the regulative functions of Government as regards such matters. In consequence, the studies of economics and law are associated in the same faculty in the universities of many countries: and where that is not done, as in north Germany, it is customary for students of law to attend some lectures on economics, and *vice versâ*. In fact this appears to be the only western country in which the two studies have been entirely dissociated.

I speak with a view to those students whose interests are mainly economic. I hope that this scheme may be extended by the addition of a few papers on political science, including international law, for the benefit of students who are looking forward to a political career (including diplomacy in its economic relations), who wish to give about half their time to economics, and the other half to recent general history and political science.

THE RECLASSIFICATION OF THE PAPER CURRENCY.

THE purpose of the act of March 14, 1900, was, in addition to reaffirming the gold standard, to systematize the currency of the United States and provide a distinctive field for the circulation of silver certificates. Two years have passed, and it is interesting to inquire how far the process has gone on and to what extent the purposes of the act have been carried out.

Prior to the act the various forms of currency were issued in denominations of one dollar and upwards. Under the act, February

28, 1878, any holder of silver coin might deposit with the treasurer in sums not less than $10 and receive therefore certificates of not less than $10 each, corresponding with the denominations of United States notes.[1] The result was that $5, $10, $20, $50, $100, $500, and $1,000 certificates were circulated by that act, and in 1886 Congress authorized the issue of silver certificates in $1, $2, and $5 denominations which were to be substituted for the higher ones.[2] Up to 1890 the secretary of the treasury was given full power to determine the denominations of United States notes, the law reading: "United States notes shall be of such denominations not less than $1 as the secretary of the treasury may prescribe." Congress in 1890 attempted to check the substitution of large denominations for the notes below $5, but the new act aims to secure this very thing. The recent law also requires the retirement of the treasury notes as rapidly as possible in that such notes when redeemed in silver coin must be canceled.

The denominations of currency under the new act are: silver certificates $10 and under, except that 10 per cent. may be issued in denominations of $20, $50, and $100; United States notes in denominations of $5 and upwards and the retirement of smaller denominations less than $5 and reissue in larger denominations; national bank notes shall not be less than $5 except in so far as one-third of such notes may be in denominations of less than $5. The act provides then a larger field for silver circulation, and the treasury note is to be removed by redemption, and by coinage of the bullion into subsidiary silver.

Through the medium of redemption, reissue, retirement, and coinage, the government expects to systematize the currency by the new law. It remains to be seen how far the provisions of this legislation has been carried out. To do this it will be necessary to examine the situation at the time of the act and at intervals since its passage. The bank note may be left out of the calculation, in that the new law does not affect the denominations of that form of currency. One-third of the national bank notes may be in denominations less than $5, the limit being, therefore, in the neighborhood of $100,000,000; but at present the circulation of such notes in denominations less than $5 is not $1,000,000. On March 31, 1900, the denominations of paper currency outstanding were as indicated in the table below:

[1] *Section 3.* [2] *Act*, August 4, 1886.

Denominations.	United States Notes.	Treasury Notes, 1890.	Silver Certificates.	Silver Dollars.
One dollar	$ 2,165,171	$ 7,050,989	$ 49,691,129	.....
Two dollars	1,976,675	6,211,506	29,018,983	.....
Five dollars	83,784,287	30,342,315	105,986,357	.....
Ten dollars	96,668,731	29,681,100	126,813,681	.....
Twenty dollars	75,587,802	9,179,690	71,395,070	.....
Fifty dollars	12,875,550	126,000	19,933,310	.....
One hundred dollars	22,712,800	1,308,400	4,058,970	.....
Five hundred dollars	10,770,000	.....	146,500	.....
One thousand dollars	41,115,000	1,475,000	2,679,000	.....
Five thousand dollars	15,000	.....	.....	.....
Ten thousand dollars	10,000	.....	.....	.....
Total	$347,681,016	$85,375,000	$409,723,000	$69,139,994
Destroyed	1,000,000	.....	.....	.....
Net	$346,681,016	$85,375,000	$409,723,000	$69,139,944

The total circulation at the time was $2,021,274,506.

The changes proposed would necessitate (1) the issue of $20,000,000 subsidiary silver and the retirement of $13,000,000 of treasury notes; (2) the retirement of treasury notes ($72,375,000) and issue of nearly $100,000,000 additional silver certificates; (3) the issue of silver certificates in $1, $2, and $5 denominations for $2,825,500 in $500 and $1,000 denominations; (4) the issue of about $60,000,000 sliver certificates for $20, $50, $100 denominations of same currency; (5) the retirement of about $98,000,000 in United States notes in $1, $2, and $5 denominations, and the reissue of the same amount in larger denominations. The readjustment when finally completed would be somewhat as presented in the table below:

READJUSTMENT OF CURRENCY.[1]

Denominations.	United States Notes.	Silver Certificates.
One dollar	.....	$ 80,000,000
Two dollars	.....	40,000,000
Five dollars	.....	200,000,000
Ten dollars	$106,000,000	150,000,000
$20, $50, and $100	180,000,000	40,000,000
$500 and over	60,000,000	.....
Total	$346,000,000	$510,000,000

[1] *Sound Currency*, Vol. VII, p. 50.

On August 31, 1901, six months after the passage of the act, there were $2,112,505 in $1, $1,855,952 in $2, and $72,352,952 in $5 denominations of United States notes, a reduction of about $10,000,000 in the $5 denominations, followed by slight increases in the larger denominations. The $1 silver certificates had increased from $49,691,129 to $54,195,939, and the $2 silver certificates from $29,018,983 to $32,318,333.

The largest increase was found, however, in the $5 silver certificates, the amount having risen from $105,986,357 to $124,412,072. The movement is evidently very largely due to the coinage of the bullion represented by the treasury notes, for during the six months the treasury notes had been reduced from $85,375,000 to $70,388,000, while the silver certificates of $1, $2, and $5 denominations had increased from $184,696,469 to $210,926,344, leaving the sum of the increase at $26,229,875, $15,000,000 of which are accounted for by the retirement of the treasury notes. The remaining $11,000,000 are made up as follows: $20 denominations, $10,474,320; $50 denominations, $5,617,175, and $100 denominations, $530,150, a total of $16,621,645; but the $10 denominations had made a gain of $6,643,770. Adding, however, the decline in the $1,000 denominations to the former amounts (some $1,720,000), the net gain of small denomination silver certificates was $11,697,875.

It still is to be seen, nevertheless, whether the change in amount of denominations is not due to the course of trade rather than treasury action. By October 31, 1901, a very great change had taken place in the denominations of the currency.[1] The treasury notes had been decreased to $41,434,000, and the silver certificates had increased to $449,648,000. The situation is well represented by the following table.

As compared with the statement of March 31, 1900, practically no change had taken place in the $1 and $2 denominations of the United States notes, but there had been a falling off in the $5 denomination of about $40,000,000, and an increase of $60,000,000 in the $10 denomination, the difference of $20,000,000 being made up by the decrease in the $20, $50, $100, $500, and $1,000 denominations. The treasury note denominations had decreased in every case to less than half in the total to what they were a year and a half before. In the case of the silver certificates, a great change is noticed. The $1 denomination has increased to $64,467,041, the $2 denomination to

[1] *Monthly Summary of Commerce and Finance*, October, 1901.

DENOMINATIONS OF CURRENCY, OCTOBER 31, 1901.

Denominations.	United States Notes.	Treas. Notes.	Silver Certificates.
One Dollar.....	2,019,488	1,723,032	64,467,041
Two Dollars.....	1,626,358	1,559,533	39,076,886
Five Dollars.....	43,714,222	13,849,625	197,153,387
Ten Dollars.....	157,367,471	16,872,710	96,646,861
Twenty Dollars.....	65,408,452	5,713,550	41,582,570
Fifty Dollars.....	11,502,475	81,250	7,802,535
One Hundred Dollars	2,030,050	863,300	2,581,220
Five Hundred Dollars	11,142,500	.....	79,500
One Thousand Dollars	33,850,000	771,000	258,000
Five Thousand Dollars	10,000	.....	.....
Ten Thousand Dollars	10,000	.....	.....
	347,681,000[1]	41,434,000	449,648,000

$39,076,886, and the $5 denominations to $197,153,387, while the $10 and $20 denominations had decreased about $60,000,000. The progress made in carrying out the provisions of the act may be noted by the comparison below.

READJUSTMENT OF CURRENCY.

	Final Adjustment.		Condition Oct. 31, 1901.		
Denominations.	U. S. Notes.	Silver Certificates.	U. S. Notes.	Treas. Notes.	Silver Certificates.
One Dollar....	$.....	$ 80,000,000	$ 2,019,488	$ 1,723,032	$ 64,464,041
Two Dollars...	.....	40,000,000	1,626,358	1,559,533	39,076,886
Five Dollars...	.....	200,000,000	43,714,222	13,849,625	197,153,387
Ten Dollars...	106,000,000	150,000,000	157,367,471	16,892,710	96,648,861
$20, $50, $100.	180,000,000	40,000,000	97,990,977	944,550	51,965,325
$500 and over.	60,000,000	.....	14,547,500	771,000	337,500
Totals.....	$346,000,000	$510,000,000	$347,681,000	$ 41,434,000	$449,648,000

Much remains to be done on the final adjustment. It will take at least two more years to retire the treasury notes. From the figures given above the silver certificate has nearly reached its maximum in three fields of estimated circulation, the $2, $5, and $500 denominations. The movement from $20, $50, and $100 denominations will be much slower. In the case of the United States notes it is a ques-

[1] United States notes net $346,681,000.

tion whether the $5 denomination of that form of currency can be forced from the field. The act has certainly bettered matters greatly, the dangerous treasury note is being rapidly retired and the silver certificate given a definite field of circulation. The latter is virtually a token money, and now that Congress has acknowledged the principles of such money in the limitation of the amount and indirect redemption, it may circulate in the place provided for it without the dangerous influences at work in 1890–3. The currency as a whole is in a much better condition than at any time since 1860, and the reclassification now going on will tend to further improvement.

FRANK L. MCVEY.

UNIVERSITY OF MINNESOTA.

SAFEGUARDING OF FACTORY MACHINERY.

ALL civilized nations have enacted laws for the safety of working people who are employed around machinery, and every state in the union has some specific laws which refer to guarding of machinery. The beneficial effects of such legislation can best be observed in the efforts of mechanical engineers to devise means by which all points of danger to an operator of a machine may, as far as possible, be guarded, and the modern manufacturer, in this country at least, has shown great skill and ingenuity in solving this problem. He has been so successful that it is safe to say, safety guards, aside from being useful, today, are also an ornament to machinery.

Let us look at some modern laundry machinery. There we find that all gears and cogwheels are effectively shielded. The big steam mangle with its three pairs of large rollers has a roller guard in front of the feed roller, which makes it absolutely impossible for the operator's fingers to be caught between the heated rollers, and the top of the mangle is protected by an iron screen. This screen is there for the sole purpose to prevent the operator from reaching over the rollers if she should want to rescue a sheet which has been going the wrong way, or to straighten out a piece of fabric which got doubled up. The extractor has been provided with a foot brake, and the outside bowl is covered by a wire hood, and it is impossible to reach down into the revolving inner bowl as long as the same is in motion. The pressman in a modern printing establishment may work with a feeling of perfect safety around his press, for all gearings have been guarded by orna-

mental shields. Woodworking machinery, which is operated at high speed, has also received due attention. The old-fashioned wooden tables of jointers, shapers, and saws have been replaced by solid and smooth iron tables and their different mechanical devices for the purpose of guiding the operator in his work are safe and easy to handle. A great source of danger by the operation of circular saws has been eliminated or reduced by the adjustment of a steel splitter to the saw table, behind the saw. This splitter prevents the wood which is to be worked upon from binding on the saw; for if a piece of wood closes in on the saw it will be hurled back with great force, and numerous are the fatal accidents which in this way have occurred. Passenger and freight elevators have been provided with self-acting safety devices, which hold the cab securely to the sliding guides in case of a break of the cable, and the former chains and handbars on freight elevator landings have been giving way to automatic raising and lowering gates. Statistical researches ascribe fully 50 per cent. of all accidents to workmen on machinery, to exposed collar set-screws and unsafe shaft couplings, but the old-fashioned collar with its protruding, square-headed set-screws, and the shaft coupling with exposed bolt heads and ends, an eyesore to a mechanic, have been replaced by safety collars and couplings, and an up-to-date manufacturer of machinery would just as little think of turning out shaft collars and couplings of the old type as a Sunday-school teacher would of adopting the *Police Gazette* as a text-book for religion. It may be said that modern constructors of machinery have not spared energy and thought to make machinery as safe as possible without interfering with their utility, and they have done much towards reducing the chances for accidents to persons that have to work on such machinery. Today there is hardly any excuse for an accident caused by exposed collar set screws or shaft couplings with projecting bolts, and operators of establishments where such accidents occur should be held to strict account for the same. Safety collars and couplings do not cost any more money than the old-fashioned ones, and it is hard to conceive why their use has not become universal. Some machine shops which have no conception of the progress of times cling stubbornly to old customs, old practices and styles. They absolutely disregard the safety factor in the construction of machinery, and today as well as in former days they will turn out old-type collars and couplings.

The writer, some years ago, visited a new woodworking establish-

ment in a country town. The machinery, which had been bought from a large manufacturer, was, as far as safety appliances are concerned, in excellent condition, but the shafting overhead was equipped with collars and couplings of the old style, having ugly set-screws and bolt ends sticking out. Upon investigation it was ascertained that the owners of the establishment had the collars and couplings made in their own foundry and machine shop. Another instance of careless mechanical construction was found in a small machine shop which builds gasoline engines for use in country grain elevators and on farms. The end of the crankshaft was sticking out beyond the hub of the flywheel more than eight inches. Its edge was sharp, with a keyway on its surface. The surplus end of shaft was of no use, and a source of danger.

The different labor bureaus and mechanical journals in the United States have for many years maintained an educational campaign with regard to safeguarding machinery, and the claim of ignorance can no longer be an excuse. Manufacturers of unsafe machinery, and machine shops which have no conception of modern safety devices, should be pronounced unfit to take care of our machinery.

JULIUS MOERSCH.

ST. PAUL.

COLLECTIVISM AND INDUSTRIAL DEVELOPMENT.

SOCIALISM, notwithstanding its very extensive literature, has hitherto been without an authoritative and comprehensive summary of its teachings, its economic basis, and its constructive program. Professor Vandervelde has proposed to fill this vacuum,[1] and his qualifications for the task are such that the work has been called the most valuable contribution to socialistic literature since Marx. As an original investigator, Professor Vandervelde has published, besides his recent works on the Agrarian question and the socialist movement in Belgium, several important contributions to social science. As undisputed leader of the Belgium movement, he is at the head of the best organized and perhaps the most successful socialist party of Europe. He embodies not only the breadth and experience of that movement, but is a confessed admirer of the Fabian Society, of English municipal socialism, and of the more liberal continental leaders. His work, though rather brief,

[1] *Le collectivisme et l'évolution industrielle* (Paris, 1900); published in translation as *Collectivism and Industrial Evolution* (Chicago, 1901).

and primarily intended for a French-speaking audience, will be welcomed by every student of the movement. Its principal interest lies in its constructive program, which indicates what will appear to many as a revolution in socialist doctrine, and its exposition of the relation of the movement to the present system and conditions of production. The latter discussion brings the socialists into a field hitherto strangely neglected by them, though the economic waste of production is always brought out as the underlying cause of the great change to come. It is for this reason that the author has adopted the double title.

After summarizing the history of modern industry in the three periods dominated by personal property, capitalist property, and social property, the author hastens to describe this too simple scheme of Marx as merely a prevailing tendency which "cannot be adopted rigorously and absolutely to the frightful complexity of modern phenomena," and though he approves of the ensemble of the Communist Manifesto, he finds in it traces of a "catastrophic utopia." This he considers a double error, for, while agreeing that the evolution of industry will furnish the necessary environment for the proposed change, he appears to think, with Sidney Webb, that the inauguration of socialism means "the conscious organization of industry" for the welfare of society.

Under the heads, "The Decay of Personal Property" and "The Progress of Capitalists' Property," the author describes existing conditions in industry. The decay of personal property has been a subject of special study for M. Vandervelde; his principal contributions to economics lie in this province. Slightly altering his arrangement, which is lacking in clearness, we find the following theses maintained:

1. While the number of independent producers, agriculturists, artisans, and shopkeepers has increased in recent years, this increase has not been so rapid as that of the proletariat. Moreover, those industries in which the number of independent proprietors has not increased, embrace nearly all the more important and fundamental branches, such as transportation, telegraphs, banking, insurance, mining, lumbering, quarrying, the production of salt, sugar, petroleum, gas, water, tobacco, alcohol, clothing, meat, etc.

2. M. Vandervelde, however, does not rely upon the gradual disappearance of this "personal property," he points rather to its decadence. It is contended that this kind of production involves both social waste and industrial misery.

If they involve an economic waste, how do small farming, domestic manufacture, and small shopkeeping hold out against organized capital

and industry on a large scale? Several explanations are suggested, each of which is applied to one or more of these branches. The author claims that the so-called independence of the small producer is often independence merely in name, and that he is dominated by the producers of raw material, by the owners of transportation and financial facilities, or by the monopolists of the market in which he sells. The small merchant often surrenders the last remnants of independence and becomes a mere agent of the manufacturer. Being in reality then dependent on capitalism, workers in these industries are apt to gain little more than a wage, while they are required to furnish and risk their small capital and so rid their economic masters of a burden these must otherwise assume. Sometimes this economic dependence becomes almost personal, as in the case of those artisans and shopkeepers who purvey to a small and highly specialized taste. It is the very nature of luxuries to be in such limited demand that they cannot be produced on a large scale, yet to have such a high value that they reach some economic importance. The producers and sellers of such commodities are dependent on the personal whims and unforeseen decisions of the purchaser. They differ little from those producers who are dependent on single individuals, such as gardeners and tenants of gentleman farmers. There is nothing to prevent the wealthy from enlarging these classes to the extent their incomes allow, and there can be no question of waste where a small group of individuals is privileged to fix the values of the wares.

Another cause given for the survival of apparently wasteful methods of production is economic parasitism. The producers may be drawing their real support from sources other than their principal employment. Such parasitism takes several forms. The worker may be drawing an income of other labor than his own, but more frequently it comes from the labor of other members of his family. In this way men-employing factories have migrated to the she-towns, and pay a wage considerably below the average. Or the worker, having saved a small sum in his previous occupation, may invest it in a business, in which, as the failure statistics show, it generally melts away; since the amount saved is not sufficient to give a livelihood from a conservative investment, less safe ventures are entered upon. A perpetual stream of investors is maintained in this way that swells greatly the total number of establishments in the business, and often ends by demoralizing it and dragging the most cautious down.

Besides the social wastefulness of this "personal property," it is claimed that it brings unsatisfactory and often miserable conditions to the producer. This is familiar ground to American readers. The complaints of the small farmer are known to all observers of the late depression; though his condition has received no adequate treatment, not even at the hands of M. Vandervelde. The sufferings of the sweat-shop workers have been thoroughly exploited in recent fashionable agitations, and the misery of the small shopkeeper has been almost gleefully told by the socialist propagandists. The author's object in gathering together proofs of the evils of this kind of production is, of course, to clear the ground of a proposed alternative for socialism, the return to former competitive conditions.

On the facts of this economic waste the book is unusually comprehensive and accurate, and the conclusions drawn from these facts mark a very important advance, an advance which will probably appear as a revolution in doctrine to casual observers of the socialist movement. The first of these conclusions is that a different evolution than the Marxian is conceivable, and personal property may pass into social property without going through the intermediate capitalist stage. Also, since this kind of property realizes in a sense the socialist idea of property joined to labor, socialism has no notion of using any constraint to make it collective, and it is even possible that "certain branches of autonomous production are destined to survive the capitalist régime."

Opposed to the decay of personal property is the progress of capitalist property, of corporations, combinations, and trusts. The trusts, thanks to their superior productive power, are invading all branches of industry (except, of course, the above mentioned survivals). Their technical advantages are claimed rather than described, and their economic superiority is attributed in a very general way to the ability of large capital to withstand a longer period of underselling than its rivals. To Professor Ely's contention that the possible field of the trusts, as well as their technical superiority, is rather narrowly limited, Professor Vandervelde cannot be said to have given an effective answer, though it must be remembered that he labors under the heavy disadvantage of being less familiar with the American development. He has, however, avoided the error of claiming the existence of a tendency to absolute monopoly, taking rather the prevailing trust as the type of concentrated industry for the immediate future with which

he is concerned. But he thinks its field will extend. Those who set a limit to the scope of the trust are compared to Adam Smith and others of his day, who set approximately the same limit to the field of the newly grown corporations of that time, namely, banking, insurance, transportation, and the so-called public utilities represented then by the supply of water. Vandervelde would extend this limit to include all those industries whose products are widely consumed, though he gives no definite enumeration. But there are also some additional exceptions to the rule of concentration, besides the survivals of "personal property," viz., the small employers. These are temporarily created by the progressive division of labor, and so form a special case. Before the advent of department stores, we find a large number of newly specialized shops. In manufacture specialization of labor continually begets new industries, branches proceeding from the parent stem. In country districts the production of market values replaces the production for domestic needs, and small producers and retailers arise to supply the local market. New industries generally, whatever their origin, begin on a small scale. In agriculture other causes, not socially defensible, give an advantage to the small producer, such as increased rents, unwillingness of tenants to make improvements, the greater relative importance of the production for domestic needs and of his own labor to the small farmer, etc. Here again the discussion is very suggestive, but, perhaps owing to lack of space, incomplete.

If some industries are not necessarily to be socialized, neither is the field of socialization, on the other hand, to be limited to those highly concentrated and highly organized industries which could economically be operated by the present state, since the future state is itself to be better organized and capable of greater things. This extensive socialization is justified on the productive side by its expected effect in eliminating the waste of the competition sustained by the above-mentioned workings of the private-property system. The political necessities of a party asking for immediate power must benefit by this point of view which makes equally undesirable the survival of competition or the growth of the trusts. On the other hand, the obnoxiousness of the trusts is confessed to be the more popular arraignment, and is therefore given all the emphasis. M. Vandervelde is more conservative in his predictions about the combinations of capital than most of his predecessors, but some of his statements

are being widely questioned in view of recent developments. Is the "reserve army of labor" being increased by the trusts? Are the unions weakened in the long run? Is the social and political power of the trust greater than that of the middle class? Relying on the more direct methods and the more concentrated responsibility of the trusts, M. Vandervelde has little to say of that "class consciousness" that plays such an important rôle in socialist theory. A large, powerful, and diversified middle class is supposed in this theory to use every avenue of civilization as a means of defense of existing property institutions, and to sink all the wider and higher aims of civilization in its desperate struggle to survive. This theory, whatever truth it may contain, is jealous of any general or even personal exception. It has done much to make the socialist proposals unpopular, and is carefully avoided by M. Vandervelde. But whether the recent combinations have increased the power of capital, or have weakened it by exposing its aims, concentrating its responsibility, and lessening the number of its adherents, is an open question.

The importance of the question of concentration of wealth is not minimized as is that of the concentration of industry. The causes working in either direction are broadly treated, and the complex statistical controversies with regard to the existing facts avoided. Unless the concentration of capital is counteracted the concentration of wealth will result. Are the savings of the workers such a counteracting force? M. Vandervelde shows from Belgian returns that the average annual income from savings accounts in that country is 13.05 francs, that more than 60 per cent. of the total number of these accounts would not give one-third as much, and that in the Belgian investigations it was found that only 1.8 per cent. of the workers' households had an income from any source whatever except their labor or public assistance.

But do the corporations have a tendency to increase the number of shareholders and so of the propertied classes? Do they tend to democratize wealth? As this claim is being broadly made by the defenders of the present trust movement its discussion is of immediate interest. M. Vandervelde's answer is at least suggestive. He acknowledges the increase of the number of those enjoying unearned incomes, but claims that the proletariat is increasing still faster and that these two classes are absorbing the independent producers. Moreover, while there is a considerable increase in the number of those

having incomes above the minimum of existence, the increase of "capitalist proprietors" is comparatively slow. The progress of production has reacted on the general well-being, but it has also caused, in a larger degree, the centralization of wealth. Here is thrown overboard the "Iron Law of Wages," sent to join the wreckage of other venerated dogmas, the "Class Struggle," the "Marxian Scheme of Industrial Evolution," the "Materialist Conception of History," in its narrow sense, the "Right of every man to the Product of his own Labor," the "Disappearance of the Middle Class," the "Complete Dominance of the Trusts," etc. This wave of iconoclasm will appear to some to have destroyed socialism itself, to have robbed it of its very life and spirit; but the unity of the Belgian movement which sustains such theories would seem to indicate otherwise. Moreover, this is an evolution and not a revolution in socialist views, for every one of these doctrines has been attacked before by socialists. The socialist respect for tradition has always brought gratitude to the historic founders of the faith; but so little is now retained of the former spirit of their doctrines, they have recently been so disfigured, and the phrases are so fast losing their hold on socialist literature that the layman must consider them obsolescent.

To return to the concentration question, M. Vandervelde minimizes the advantages offered to the people in becoming shareholders of the large corporations; he points out the dangers to the small investor from inexperience, from unavoidable ignorance, from concentration of risk, and from the greater difficulty he experiences in accommodating his income to the exigencies of profitable investment. Besides, the income of the proletariat is needed for insurance, education, etc.— investments which may be of greater importance to the individual but have no direct tendency to give the class a larger share in the product. Moreover, whatever the effect of the growth of corporate property upon distribution, "it is precisely to this depersonalization of capitalist property, freed from all connection with actual labor of the possessor," that Professor Menger attributes the revolutionary tendency in production. He says: "The more the disproportion increases between the legal title and real power, the more complete the change from small property to large property and from the latter to the mere possession of title, the weaker grows the whole structure of the system of private titles." In other words, while a somewhat wider distribution of stock may buy the silence of many, it will not heal the disease either of production or of distribution.

The critical part of the work is closed with a discussion of the elements of profit which constitute its defense. Profits are not altogether the wages of insurance, since a high average rate of profit remains after distributing individual losses. Moreover, it is these very individual losses that constitute an important element of social waste, especially indefensible when they result from speculation. The second element, abstinence, is only justified in the following sense. Under socialism, "the collectivity would need to exercise abstinence and devote a large part of its products to the maintenance and renewal of social capital; but it would not have to pay an additional sum to reward the exercise of this abstinence, to stimulate the capitalist to save rather than to consume." That profits are not the wages of superintendence is shown by the replacement of active capitalists by salaried managers. "For the stockholders," says Max Weiler, quoted by the author, "accomplish not one of the multiple active functions of the capitalists; all those in fact who assume the various responsibilities of the general administration, of technical and commercial direction, and of financial control, are rewarded by fixed salaries." This is the dead weight of "passive capitalism." On the other hand, the "active capitalists" are appreciated as men of initiative, the promoters and managers of enterprises, the modern conquistadores, who with an energy which is in most cases equaled only by their lack of scruple are incessantly creating new enterprises and bringing into order the enterprises of new countries." In view of this the very evident activity of these "passive capitalists," of those exercising the purely pecuniary functions, the author would have done better to have used the recently suggested distinction between pecuniary and industrial functions. He avoids the difficulty of discriminating closely by admitting that a life-interest in property may partially be justified in the case of the active capitalist. But an hereditary interest cannot in any case be so justified, and is therefore vulnerable to the socialist attack. By limiting the right of inheritance but not suppressing it people may still be stimulated to labor for their descendants and posterity. Though this limitation might injuriously affect the labor of a few, the existence of unearned incomes is a far heavier blow to the general ambition.

This brings us to the constructive program. Three generalizations underlie it:

1. There is a social product in excess of that consumed during the process of production.

2. This product is produced by labor. Vandervelde lays emphasis on the negative expression of this principle; the product is *not* produced by the capitalist in any part, especially not by the inheritors of wealth.

3. Even when invested in production and not consumed, this surplus is wastefully employed, since the system aims at individual profit and not at social welfare.

On what principles, then, are production and distribution to be reorganized? As to distribution, the doctrine that "each man has a right to the entire product of his labor" is repudiated on the ground that wealth is social in its origin. Even the negative statement of this principle should be expressed in social terms. That is to say, unearned income must be disapproved as a whole; the capitalists must be considered as the members "of a vast impersonal corporation who divide among themselves the benefits derived from capitalism *pro rata* to the number of shares." The communist principle, "To each according to his needs, from each according to his ability," is valuable as an ideal but will not assure the maximum productivity on account of the egoism of today, although the time may come when "the progress of morality and of social unity, the abundance of production, and the disadvantages and difficulties of any other mode of distribution may result in a general application of the principle. At any rate certain *common* expenditures should be made before a distribution to individuals should take place, such as increased public services of all kinds, an extension and elevation of the minimum wage, provision for the future, and the reward of those intellectual and artistic workers whose productions are of a public nature.

As a further solution nothing would prevent the adoption of the present system of graded salaries in the public services. This is, of course, pure opportunism and the author hastens to add that all "solutions must necessarily vary according to the times, the places, the industries, and the degree of intellectual development of the producers." It is at this point, then, that the utility of the socialist principles ends as far as distribution is concerned. The author adds, however, an abortive and rather hazy suggestion of automatic adjustment.

A chapter is devoted to the defense of this revolution in the system of economic rewards against prevailing attacks. In it copious and sometimes original arguments are given in an attempt to show that individuality, individual liberty, and individual initiative would gain rather than lose under the new régime. The high place given to art

and literature and to the development of character in this discussion suggests that it is in these matters that the author takes the deepest and most personal interest.

The end of socialism is "the collective appropriation of the means of production and exchange, the social organization of industry, and the retention of the surplus product for society and the individual worker." In the social organization of industry there are three steps: the victory of the proletariat, the assumption of control by the collectivity, and the improvement of the governmental machinery. The first two stages, being nearer to practical attainment, are treated separately. The advantages of the extension of state control are: the reduction of charges, the improvement of the conditions of labor, the better treatment of the producers of raw material, the uniformity and social policy of charges, the improved quality of products, and the consideration of the interests of generations to come. Most of these points have been thoroughly discussed before, notably by the Fabian Society.

"But in a number of industries the extension of this kind of fragmentary collectivism would offer more inconveniences than advantages." These advantages would be generally "neutralized by the apathy, the routine spirit, the fussy sluggishness, the spendthrift habits, the indifference to the preferences of the public which are only too justly the reproach of the modern bureaucracy." But collectivism is not a mere extension of the present public domain; socialism is not "all for the state." If the bureaucratic state is referred to by those who accuse socialism of this aim, it is replied that this "is the very instrument for ruling which has for its essential motive the protection of the sum-total of the interests of the possessing class," and it is on this basis that the institution has evolved. If this accusation were true, "socialism would have no adversaries more bitter than the socialists themselves."

There must precede any such extension of the public domain "a whole series of transformations in the intellectual, the moral, and the politico-social order." For this reason socialists themselves often protest against such an extension today, all the more since the executive departments are often effectively removed from democratic control. "In order that the extension of collective property may be advantageous to everybody, the first condition is that the government belong to everybody." A second condition is the differentiation of govern-

mental and industrial functions, "a tendency to which is seen in all countries today," as in the management of the Swiss and Australian railways. Another condition is the decentralization of social enterprises by giving independence and responsibility to subordinates; as in industry, as at present organized, they should have freedom in the methods of executing their work, and should be held responsible for it. The municipalities and the present and new local units should also take a large share of the power.

Finally are discussed the means to be used to effect the changes contemplated when the socialists shall gain political power. Since it could not be accomplished practically in a single step and would therefore fall unequally on different classes, expropriation without indemnity is rejected as unjust. Indemnities must be paid and a heavy inheritance tax is chosen as being the best plan for raising them. Collateral and intestate inheritance is to be abolished and a 25 per cent. tax is to be levied on all other inheritances. Nothing is said as to the methods by which this single tax might be evaded.

The monopolies are first to be purchased and operated, later other important and fundamental industries. But there is no reason why the state should not at the same time aid, in every way possible, productive co-operation in other and more backward industries. "But whether the change will take place gradually or suddenly, peacefully or through a revolution, with or without indemnity, are questions which depend much less on our individual preferences than on social conditions. It is impossible not to think of Schiller's lines ending with the words 'struggle rules, and it is the strong that conquer,' when one thinks of the blind, tenacious, ferocious resistance with which the privileged classes always oppose the most modest proposals of the people." If force rules, the proletariat must gain that force — which they lack today. "They must raise their intellectual and moral power to the height of their aspirations, and they must prepare, through the free and spontaneous organization of the working class, generations which shall be ripe for the republican organization of industry." The workers must arouse the consciousness of their class interests and "with steadfast patience lend themselves to the conquest of political rights and power."

WM. ENGLISH WALLING.

BOOK REVIEWS.

The Little Red Book of Bristol. Published under the Authority of the Council of the City and County of Bristol. Edited by FRANCIS B. BICKLEY. Bristol: 1900. 4to, 2 vols., pp. xxxviii + 249 and viii + 283.

To the honour of Almighty God and for the tranquility of the inhabitants of the town of Bristol at the request of the Commonalty of the same town, I, William de Colford, Recorder there, in the eighteenth year of the reign of King Edward III. after the conquest [1344] have caused the ordinances, customs, and liberties hereunder set down, made for the commonalty of the aforesaid town to be recorded and entered in this book together with certain laws, other memoranda and divers necessary things to be inviolably kept in perpetual remembrance. [And] Whereas many good customs of the aforesaid town having been abused and some almost forgotten, on Wednesday next before the feast of Saint Katharine the Virgin in the year aforesaid, ... the customs and ordinances in use from old time were gone over and approved [by the Mayor and Council] some being then amended with others newly made to be observed forever.

So runs a translation of a part of the first entry in the Little Red Book, and it discloses to us the inception and the purpose of the volume. It seems to have served as a sort of register or book of record, and the "ordinances, customs, liberties, together with certain laws, other memoranda, and divers necessary things" to be kept in perpetual remembrance, form a heterogeneous mass of contents. All these matters occur in the book in no special order or plan of arrangement; for 150 years after William de Colford successive mayors, with the assent of their council, ordered entries to be made, and the recorder seems to have inserted them in any part of the volume where there was convenient space.

Mr. Bickley, the editor, has found it necessary therefore to anticipate the reviewer, and to offer in the introduction a classification of the documents recorded, and has accompanied his classification with copious and helpful comments. He divides the contents into four groups. The first consists of liberties and franchises of the town,

oaths of officials, recognizances for orphans, ordinances of the common council, etc.; and the editor classes these all together because they are matters which peculiarly affect Bristol. There is little in this group that will lack significance to one interested in the development of local government and municipal regulation of economic life. But he will be disappointed who hopes that by means of the Little Red Book this development can be consecutively traced, for it includes only a small part of what it is essential for us to know. Far from a complete list of the liberties and franchises, and a comparatively small part of the town ordinances, are to be found in it. The royal charters and other grants of privileges seem to have been preserved among the archives of the town, and were sufficiently easy of access there, whilst the greater part of the proceedings and decrees of the council were perhaps not deemed worthy of "perpetual remembrance." Of the ordinances, however, two elaborate sets are given us, besides a number of others occurring singly and relating to specific subjects. The first set was adopted in 1344, and embodies the ancient customs of the town; the second is of later date, though still of the fourteenth century, and differs in no essential respect from the first. Both sets are miscellaneous in matter and arrangement. The duties of officials, the collection of debts, the care of streets, customs regulations, the rate of wages, the residence of strangers, forestalling and engrossing and other trade restrictions, the price of bread and ale, the pleading of writs, admission of burgesses — to such and similar subjects both sets relate, and they present to the reader a distinct view of the functions and policy of the municipal government at the time they were adopted.

The second class of documents consists mainly of ordinances of the craft guilds. Only seventeen of these organizations are enumerated in the Little Red Book, though one of the historians of Bristol records twenty-six in 1449. Nor is there any mention of the Merchant Gild, which certainly existed there as late as 1372. The "Rede Papre of the Yeldhall," as contemporaries called the volume before us, was intended to contain only those regulations that the craft-masters deemed of peculiar importance and those that they found it difficult to enforce. Some crafts, therefore, made much more use of it than others. The dyers, for example, appear in it very frequently; the farriers and allied crafts but once. While it cannot be said, perhaps, of such ordinances as are preserved that they throw any new light upon the nature and development of the guilds, as described in the works of Ashley, Cun-

ningham, and others, yet they certainly illustrate that development in a vivid and interesting manner, and in making them accessible Mr. Bickley has conferred a favor on students of history. The main purpose distinguishable in them all is threefold: to maintain a certain standard of excellence in the work done, to regulate wages in the interest of the masters, and to limit competition. The first of these prevails in the early ordinances, the second appears — for reasons that are familiar to us — in the latter half of the fourteenth century, while during the fifteenth century the third becomes more and more predominant. It is easy to see that Bristol was a progressive town, and that competition was manifesting itself both from within and from without. The dyers complain that many who have been neither masters nor apprentices, and even men of other crafts, are interfering with their employment. The weavers say that the wives and daughters of the masters are taking the place of men at the loom. The hoopers complain that aliens and others are practicing their craft. The cordwainers assert that there are certain masters among them that give work to men of "estraunge countrei." The weavers in 1462 lament the behavior of many of the craft who daily receive and put to work "straungiers and allions, and for their singuler profit provokyn and stere divers marchauntz to bring into their town people of divers countrees not born under the Kynges obeisaunce but rebellious which been sold to theym as hit were hethen people," wherethrough "such straungers and allions beth gretely multeplied and encreased within the Towne." It was in the effort to suppress such competition that the English craft guilds eventually lost their vigor.

The guild ordinances exhibit most distinctly the control exercised over the crafts by the municipal government, a control based on the necessity of municipal sanction in order that the rules of the crafts might be enforced. Thus the dyers passed certain ordinances and had them recorded in the Red Book in 1346, 1381, and 1407, and in the latter year they even had attached to them the seal of the mayor's office. To give them still greater sanction they had them confirmed by royal charters from Henry the Fourth, Henry the Fifth, and Henry the Sixth. And yet in 1439 we find the masters complaining that the ordinances are not observed, and "divers trespassours of ham dredeth not to contrarye and trespasse ayhenste ham . . . . be cause thei have it not vnder the commone seall for the more warrant, wherethrogh that the seid crafte is gretely hindred and schlaundred;" therefore

they desire them to be confirmed in writing under the common seal, which was done, and we hear of no more complaints from this craft.

The privileges and liberties granted to various other towns, boroughs and manors compose the third class of documents. These were inserted in the Little Red Book apparently in order that the burgesses of Bristol might know what rights visitors to their town could demand. Mr. Bickley does not give these documents in full, since they, or others like them, are easily to be found in print elsewhere.

All the rest of the contents the editor groups together in a fourth class. This is composed of a collection of notes and documents that seem to have nothing whatever in common except that they were deemed important by the business men of Bristol. Among matters of less consequence might be mentioned the Rules of Oleron for the regulation of the merchant service — which the editor does not print, as they have been several times published elsewhere — the Assizes of Bread and Ale, the jurisdiction of the Admiralty, and a remarkable fourteenth-century treatise on the Law Merchant. This treatise is by far the most unique, and in some respects the most important, document in the book. The editor comments with an astonishment in which we participate on its having so long lain unnoticed. In discovering its lurking place, recognizing its importance, and printing it *in extenso*, Mr. Bickley has rendered a boon to many who have long sought in vain for such a succinct, intelligible, and authoritative statement of the principles of this interesting branch of mediæval law.

Such is the Little Red Book, a volume full of material illustrative of the life, activities, and interests of a progressive mediæval municipality. The edition before us is worthy of the contents. Mr. Bickley has shown a praiseworthy discretion in deciding which portions to print in full and which to abstract or merely to enumerate. His notes and comments, both in the introduction and in the text, though always concise, are luminous and adequate. The printers have likewise performed their work with painstaking care. The illustrations, consisting chiefly of reproductions of charters, plans, and documents, have been beautifully executed; the two volumes in which the book appears are handsome in appearance, and are singularly free from misprints and similar defects.

THOMAS WALKER PAGE.

UNIVERSITY OF CALIFORNIA.

Trusts and the State. A sketch of competition. By HENRY W. MACROSTY. New York: E. P. Dutton & Co., 1901. 8vo, pp. 318.

The Control of Trusts. An argument in favor of curbing the power of monopoly by a natural method. By JOHN BATES CLARK. New York: The Macmillan Company, 1901. 12mo, pp. 88.

NO ECONOMIC or social phenomenon has ever given rise in the same space of time to such a crop of literature as the trust movement since it entered the acute stage with the advent of the year 1898. A perusal of any of the recently compiled bibliographies of the trust question is calculated to impress the conviction that the trusts have been productive of overmuch discussion, if of nothing else, and, so far at least, have been something of an evil. For the quality of the output, taken by and large, has not been of equal degree with the quantity. To say this, and to add that much of the discussion has been of a fugitive character, mainly of interest as supplying an index of individual, class, or sectional opinion, and little likely to exert much influence in the formation of an efficient public opinion, is only to say that the bulk of the discussion has thus far been of lay origin. It must, however, be admitted that the academic contribution to the discussion has not always been up to standard. Aside from two or three notable exceptions, there has been too much dependence on theoretical analysis, and not enough attention given to careful weighing of facts. Assertion and assumption have too often been made to do the service of demonstration. Above all, there has been too much disposition to seek for single and simple causes, too much disposition to treat the evolutionary formula as the one and sufficient key to the interpretation of the trust movement. The fact is, as experience has already abundantly showed, that the trust movement is motived by too many different causes to make such a procedure anything other than naïve.

Some of these defects of method are exhibited in one or the other of the books here under review. But, on the whole, they may be said to have advanced the discussion to a higher level.

Mr. Macrosty's position is that of a socialist and evolutionist, and his volume is published as the first in the new Fabian Series. The best and the largest part of his book is taken up with a careful examination of the workings of the modern system of competition. In order to see the trust in its proper historical perspective and economic

environment, and thus to arrive at a true appreciation of its causes, Mr. Macrosty has found this examination necessary. These chapters of his book constitute the best introduction to a study of the trust system we have yet met. They reveal the shortcomings of the competitive economy in a glaring light. There is nothing strikingly new in Mr. Macrosty's findings; but his analysis is so thorough, exhaustive, and enlightening, that it gives one a very much livelier appreciation of the insufficiencies of the system of competitive capitalism than he is otherwise likely to have. To quote a single example of Mr. Macrosty's demonstration of the inability of the capitalistic system adequately to control production:

> The community is interested only in the accommodation of the whole supply to the total demand, but it is to the interest of each individual manufacturer to secure for himself as large a share of that demand as possible, without regard to the probability of there being an oversupply. To secure custom, he must underbid his competitors; to make the low price profitable, he must reduce his expenses of production. There is thus a permanent stimulus to the improvement of organization and to the invention of new processes; but, as soon as these advantages are gained, they are immediately lost by competition, and the enhanced profits are either dissipated in expenses or handed over to the consumer. The old economists justified competition on this very ground, that the desire for private gain first drove capitalists to improve their industry, and then compelled them to part with their profits to the general public; but they arrived at this attitude only by neglecting all the other aspects of the problem (p. 104).
>
> After all, men are in business, not to exhibit the "natural" laws of economics, but to make an income, and it is a poor consolation to a bankrupt to know that he has been overwhelmed by a stream of tendency (p. 152).

It is better to combine than to fail, and so we find co-operative capitalism, under one form or another, presenting itself as the leading feature of the industrial movement today. It has all the marks of permanence and necessity; it is not confined to any one country, and accidental causes will not explain it. Mr. Macrosty takes sharp issue with the view of M. Paul de Rousiers—a view that has found favor with Professor Ely and others in this country—that there is always something "of an exceptional and artificial character," such as the tariff or railways discrimination, in the conditions resulting in the formation of a trust. Well-established economic forces, that are as operative in Europe as in America, and that can all be summed up in the phrase "destructive competition," adequately account for the trust

movement, which "is the dominant feature of British industry today" no less than of American. "Competition, like the scorpion of fable, is stinging itself to death" (p. 147). If it is the life of trade, it is none the less the death of businesses. And, hence, modern industry is seeking salvation in the opposing principle of association. Combination is, therefore, the order of the day, and "the immediate future of industry lies with the private monopoly" (p. 204); and "private monopoly threatens to overwhelm the state by economic and political oppression" (p. 317).

Here the "trust question" begins to emerge. Mr. Macrosty makes no doubt that trusts, combinations, and all other forms of monopoly, mean a great advance in the organization of industry. But private monopoly is a public danger, because we cannot with safety rely upon the self-interest of its proprietors either to supply the needs or supply the services which the community demands, in the manner most conducive to the common welfare (p. 211). "The problem is, how to secure the benefits of combination without its disadvantages." For Mr. Macrosty, as a Fabian, this question suggests its own answer: "In the collectivisation of industry lies the future hope of society. We cannot go back to competition, but we can direct the new tendency into safe channels" (p. 317).

This is a bald statement of Mr. Macrosty's argument, and it would be unfair to leave it without bearing testimony to the literary skill with which it is presented, the careful and discriminating survey and interpretation of facts and forces with which it is at almost every point supported. There is, however, one weak spot in the argument to which we feel bound to call attention — the assumption, namely, that trusts are, of necessity, monopolies. This, if one may be permitted to say it, is *the* trust question, not to be lightly passed over, but to be as exhaustively analyzed as the apparatus of scholarship permits. The monopolic power of combination is a question of fact, to be investigated as one of fact, not a condition or result to be assumed in accordance with preconceived opinion or prejudice. In the face of his admissions "that even existing trusts steady prices" (p. 206), and that, while "there is some evidence that British combinations have raised prices, ... there appears to be no ground so far for supposing that the new rates are unreasonable" (p. 208), we find it hard to understand why Mr. Macrosty should have allowed himself to take the monopolic power of trusts so much as a matter of course. The ques-

tion is not yet settled against competition, after all, and one need not enroll himself among old-fashioned individualists to take comfort, rather than alarm, from Mr. Macrosty's confession of faith, when he writes: "The essentially important thing is not that prices are raised, but that the only safeguard of the consumer consists in the perspicuity of the managers of these great combinations" (p. 208). Nobody but a socialist would gather from this that the logic of the situation demanded "public ownership of industry" as the only way of saving the public.

It is just here that Professor Clark's little book is likely to render a timely service in calling attention in vigorous fashion to the persistence and regulative efficiency of competition, even under present-day conditions. He is the knight of potential competition. Distinguishing between centralized production and true monopoly, it is the especial concern of his book to show that there need be no fear that the former will develop into the latter, if law and public opinion do their work in keeping the field of industry open to all comers on fair terms. Centralized production we want; monopoly we do not want. The way to secure this, is to keep competition alive, by removing those obstructions to its action, in the shape of railway rebates, factors' agreements, local cutting of prices, and analogous forms of "predatory competition," which the trusts are now trying to erect. In Professor Clark's scheme of salvation, the independent producer is the savior: "Save him, and you save the great interests of the public."

The position and philosophy thus briefly indicated are outlined with skill and power in the eighty-eight pages of Professor Clark's book. An exultant optimism, based on the accepted adequacy of the natural force of competition — just such as we should expect from the author of the brilliant *Distribution of Wealth* — pervades the pages of this little volume, that sometimes rises to the height of eloquence. But, withal, neither the reasoning nor the eloquence of Professor Clark quite carry conviction. Without further comment, we record our impression that the world which Professor Clark is here explaining is not the world that is. Something has been left out. In consequence, the logic of his argument is better than the substance of his conclusions.

A. C. MILLER.

A Study of the United States Steel Corporation in its Industrial and Legal Aspects. By HORACE L. WILGUS. Chicago: Callagan & Company, 1901. 8vo, pp. xiii + 222.

AS THE title suggests, Professor Wilgus has divided his study under two heads, the formation and the industrial position of the United States Steel Corporation, and the legal considerations that affect its status as a "trust." Under the first head the author is the faithful recorder of facts, deferring his personal opinions to the latter. A vein of optimism cannot, however, be concealed.

The presentation of the conditions that preceded and led up to the formation of the trust shows the hand of the lawyer. It is graphic and logical. The reader is given a bird's-eye view of the situation which brings out the main features without overburdening details. "What Is It? Who Formed the Combination? Why Was it Formed? How Formed?" are the subheads under division on "Formation." The human element has not been neglected. The personalities of the chief actors, J. P. Morgan and Carnegie, have received a brief sketch. Professor Wilgus must be given due credit for calling attention to the influence of the personal element in the directing of economic activity. The human actor is too often overlooked in economic treatises. Another valuable contribution to the discussion of modern business organization is the author's analysis of the management of this great corporation. The machinery by which the enormous resources of the corporation are held together and made effective in all its ramifications, the source of initiative and vigorous policy, the dwindling power of ownership as typified by the shareholders and the growing power of control of the directors are often overshadowed by the magnitude of the productive results. What the author has done to present a clear analysis of the managerial function in the case of this corporation will be appreciated by every student of corporate activity.

In treating the legal aspects of the United States Steel Corporation the author asks, "Is it an illegal trust?" The illegality of a trust depends upon its substance and its form. Although it is never quite fair to quote an author's summary without indicating his argumentation or qualifications the following quotations give in substance the author's position:

> From the review we have taken of the industrial side of the United States Steel Corporation, and waiving all questions of form, it is reasonably certain

that it is a combination made with the intent, effect, power, and tendency to restrain competition in the iron and steel business (p. 74).

In regard to the illegality of form the author draws parallels between the forms of organization of the Standard Oil Trust and the steel corporation showing the virtual similarity of both, and ends with the remark:

> If these views be correct, it is not unlikely that in the states having a policy forbidding the creation of trusts and monopolies, the court will hold it [the steel corporation] to be an illegal trust within even the strict meaning of that term (p. 86).

The optimistic view of the author as an economist seems, therefore, to come in conflict with the conclusions of the lawyer. Any combination that has the power and tendency to restrain competition is sinful before the law. The old status, where free competition was the guardian, or was supposed to be, of just prices and social welfare, must be preserved by the court. The author recognizes the human factors that are constantly at work in society, discarding old methods and seeking new forms more adapted to an efficient and profitable business. These new forms come in inevitable contact with the legal recognition of the old, and the author finds himself in a dilemma how to preserve the value of the new form of business without breaking the law. This dilemma remains unsolved. The author shows that the state and federal governments have power to control the business of a corporation when it becomes injurious to the public welfare. The artificial raising of prices through combination is unlawful. But combinations that have this power inevitably grow up. If the United States Steel Corporation is unlawful, for the reasons stated, then its existence should be made impossible by the courts and not only its possible effect upon prices. A compromise must be found by the law wherein the trusts will be recognized and public interest maintained through other safeguards than those afforded by free competition.

To complete the comprehensive view of the power and extent of the United States Steel Corporation, tables and appendix are added to the main discussion. Professor Wilgus's contribution is one of the clearest and most practical of the books on trusts.

S. G. LINDHOLM.

Taxation of Corporations in New York, Massachusetts, Pennsylvania, and New Jersey. By ROBERT HARVEY WHITTEN. Albany: University of the State of New York. New York State Library (Bulletin 61. May, 1901. Legislation 14). 8vo, pp. 193.

"THE aim of this study is to present the corporation tax systems of these four states in which corporation organization is so strongly developed." The bulletin is arranged in three divisions: a comparative summary giving a brief review of the several systems; a summary by states; and a compilation of the corporation tax laws of these states. A list of the authorities consulted is inserted before the compilation of laws.

The captions in the summary by states are general business corporations, public service corporations, state and national banks, trust companies, savings banks, insurance, incorporation and license tax, and shares and bonds; the whole being drawn up with a view to comparison. Dr. Whitten has taken the precaution to submit the proof of this division to the tax officials of the respective states, so that its accuracy and completeness may be relied on.

The text of all the tax and general laws, which are deemed necessary to present a complete view of the methods of taxing corporations is given in the compilation of corporation tax statutes. References to court decisions are made so far as they are essential to an understanding of the bases and systems of taxation; those relating to technical administration are omitted. The study is complete to May 1, 1901, and it is the intention to keep it up to date by frequent revisions, and perhaps later add other states, especially Ohio, Indiana, and Illinois, to the list. The excellent arrangement of the material in the summary of the laws by states, makes prominent the diversity of systems or their absence. This is so far the case that one is interested when the author points out that there are "a number of points of similarity between the systems of New Jersey and New York." Changes, as in the manner of assessment by state rather than local officers, have been made, not from a sense of the injustice of the former system, but because the local assessors were unequal to the task.

The term public service corporations here includes "all transportation and transmission corporations and all corporations exercising the right of eminent domain or any franchise to use streets or public

places." Under this heading there are some interesting remarks. Many states have given up actual value as a basis of assessment in favor of gross receipts, mileage, par value of shares, etc., the justification being that they are comparatively simple and certain. But "they are unequal and arbitrary, the rate imposed being necessarily fixed by guesswork or intrigue." Corporate interests have usually favored them "because of their definiteness, and because the amount paid is usually much below their proportionate share of the burdens of government as measured by net income on the actual value of their property." Net income and actual value of property including franchises, in the view of the author, are the only bases of taxation that can be plausibly defended. However, he does not clearly indicate how the latter is to be estimated. A state board — upon whose superior ability reliance may be placed, it is suggested — presumably, would execute the plan. The general trend seems to be in this direction. However, there is no pretense that this is a treatise on taxation, and these are but *obiter dicta* in which the compiler does not indulge in the other sections. The bulletin, with its table of contents and complete index, is full of accurate and easily found information.

C. C. ARBUTHNOT.

La propriété rurale en France. By FLOUR DE SAINT-GENLIS. Paris: Armand Colin, 1902. Small 8vo, pp. xviii + 445.

M. DE GENLIS'S work is a *mémoire* crowned by the French Academy of Moral and Political Sciences. The reasons for its acceptance are set forth in an introduction by the official *rapporteur* of the society. Both the *rapporteur*, M. de Faville, and the author rank rather high among the new school of investigators of national and economic questions (as shown in the *Bulletin du Comité des travaux historiques*). This school devotes itself to the study of local phenomena of the past, in order to come to know French economic history in all its bearings, and establish on a secure basis some of the theories concerning her economic policy in the future. A country has a certain physiognomy, definite traits which are the work of nature, and which maintain themselves whatever man does to efface them. The question is, in the first place, how to be true to these traits, rediscover them, redevelop them, make them what they were meant to be, not spoil them or distort

them. To effect this, knowledge of what the country was, is, and can be, must be made accessible; and these scholars, without yielding anything essential in method, are trying to reach, in their monographs, a constantly wider circle of readers. The desire for information in all classes is evidently growing, as one can see, intelligent Frenchmen are fully awake to their responsibilities. This patriotic work of making the landed proprietor understand his position and secure the proper exploitation of his land as well as the preservation of his fortune, is evidently cherished and encouraged by the Academy, which offers prizes of considerable magnitude for this purpose.

The present volume augurs well for the character and outcome of this beneficial propaganda. Wherever one opens the book it is found singularly instructive, and, for a wonder, it is written in an engaging style, compact with information, but sifted and placed so as to furnish the same problem with constantly new illustration. There is, of course, some repetition, such as the same quotation repeated twice (for example, pp. 66 and 165), but, for the sake of getting a thorough grasp of the matter, the reader easily forgives this. The author is indefatigable in demonstrating his point of view, the eager life of a closely scrutinizing and keenly adjusting mind throbs everywhere, and one receives, in these closely packed pages, a mass of information which in truth makes the volume a valued guide. And M. de Saint-Genlis's book does not merely present phases with which one is to some extent familiar and which have their parallels in economic history elsewhere, but gives also new and even surprising views, as in his historical sketch of the vicissitudes of the peasant property and the gradual despoilment of the seigniorial estate. For all this he has documentary evidence, as it seems, of the most convincing sort, not only in statistics illustrating the modern problem of rural property, but in the old accounts of notaries wherein are registered the sales of land during some hundred years—which make the book in every way both comprehensive in scope and suggestive in detail. For these reasons the book ought certainly to reach a wide circle of readers also in foreign countries. As the *rapporteur* says, in his introduction, "the richness of the documentation and the solidity of the reasoning hold the attention of the reader and strengthen his confidence in the results obtained."

France, from the beginning of its history, has been a country of agriculture; her people have a love for the soil, which in the cultivator par excellence, the peasant, who lives for and by the land, reaches the

height of passion. From the earliest times the land has been divided between the large and the small landowner, the *seigneur* and the *affranchi*, as M. de Saint-Genlis calls them. Compared with these the third kind of ownership, the medium estate, is of rather recent origin (fifteenth and sixteenth century). It begins with the burgher being seized with a longing for country possessions and buying from the sales of bankrupt seigniorial estates or speculating in the misery of the peasant. Concerning the small property, however, to which he pays particular attention, M. de Saint-Genlis points to the interesting fact, which his study of archives has revealed, and which the theory of economic history has so far ignored, that France has not merely had feudal estates, with lords and tenants (serfs), but freed serfs as well, the peasants proper, who held or possessed land which the lord had willingly sold them and for which they paid either a fixed rent or a share of the profit. The seigniorial estate gradually dwindled until the lord had nothing but his little reserve outside the walls of his castle, and lived largely by the dues from his free tenants. Time after time, when crises of long and bitter duration had shaken the national structure to its foundation, not the large estates, but the small, have shown the greater power of recuperation. After national disasters France has been again and again covered with myriads of little farms where the peasant, with his infinite patience, obstinate energy, and love for the soil, proceeded to gain a livelihood for himself and others, being, as reward, preyed upon by tax gatherers and lordly exactions. The great act of liberation which the Revolution brought about, the author declares, was not presenting the peasant with land, for this he already had, but redeeming him from the atrociously increasing public burdens which deprived him of the return from his labors. It made him a man, instead of a coward who trembled at the sight of a stranger, shirked and lied and hid his earnings, simulating starvation, in order that his little be not taken away from him. For the immediate problem of the future of agriculture in France, the statistical tables, with which the volume is richly furnished, will give valuable suggestions. They present such a wealth of detail that the reviewer must refrain from even approaching a discussion which would demand altogether too much space to be even approximately helpful. Suffice it to say that the author places no great faith in the duration of a perpetual agricultural *misère* which would fatally cripple the resources of France, and in the end deliver her up to her enemies. The study of her past

and her present, the awakened attention to her needs, and earnest effort to meet these, will finally bring forth a solution of the problem that will be in keeping with her true destiny. What her agricultural classes are now most in need of is an intelligent cultivation of the soil which can meet the exigencies of competition, a fair and sensible legislation such as will not hinder but further initiative, and associations among the peasants themselves which will effectively watch their interests and break the baneful power of the *bande noire*, the crowd of agents, speculators, money-lenders, and solicitors against whom the peasant class battles furiously, but, as it seems, as yet unavailingly.

A. M. WERGELAND.

UNIVERSITY OF CHICAGO.

Die Ergebnisse und die Aussichten der Personaleinkommensteuer in Österreich. By FRIEDRICH FREIHERR VON WIESER. Leipzig: Duncker & Humblot, 1901. 8vo, pp. 147.

THIS elaborate statistical study was written for the purpose of bringing about an improvement in the assessment of the new income tax in Austria. It was a delicate task the author set himself, and he has discharged it with no little skill. The two assessments of the income tax, the first made in 1898 and the second in 1899, were both disappointing; at least to the national pride of Austria, for they showed, apparently, that the people of the empire were poorer than those of Prussia and of the other nations which have a similar tax on incomes. Thus, for example, there were in Austria, in 1899, only 29.56 persons assessed for the income tax in every 1,000 of the population, while for the same year there were 93.96 contributants in every 1,000 in Prussia. Or, to take another comparison, there were in Prussia 71,202 persons whose income exceeded 9,500 marks, while in Austria there were only 18,497 persons who reported an income of over 6,000 gulden, the nearest equivalent grade. To explain away these returns without either admitting that the Prussian people are nearly three times as wealthy as the Austrian, or directly blaming the administration for laxity in assessment, was a task which taxed the ingenuity of the patriotic Austrian writer. He has accomplished this task by taking refuge behind the statistics and by letting them, so far as possible, speak for themselves. This it is apparently which makes it necessary for the author to reveal to us, as he does with great minuteness, the entire

machinery of his investigation. As a result the essay reminds us not a little of a fine French clock with glass sides, for every wheel and cog, all the gearing, and the many fine chains in his argument are in plain sight. He asks us for no confidence, and assumes no responsibility for his opinions. Everything is worked out before us like a sum in arithmetic. The harshest phrase of condemnation that the author allows himself to use toward the administration, even when the statistics or the impersonal machinery of his investigation show at least a lamentable failure in the assessment to reach all classes of persons subject to the tax, is that the "technique of the assessment is still in its baby socks;" and even this, he is careful to tell us, is quoted from an essay by an officer of the treasury department, and thus has, in a measure, the endorsement of the administration itself (p. 5).

The study consists mainly in a close comparison of the results of the Austrian assessment for the income tax with that of Prussia. This method is possible and all the more profitable because the two taxes correspond very closely in principle, in form, and even in the graduation of the rates.

The rate of the Prussian income tax averaged, in 1898, 2.01 per cent. of all incomes assessed; in 1899, 2.02 per cent.; while the Austrian averaged 1.93 per cent. and 1.91 per cent. respectively in the same years. To that extent it would appear that the lower rate favored a fuller assessment in Austria than in Prussia. But the Prussian rate, it will be remembered, rises in broken progression, that is, the rate becomes nearly proportional at 3 per cent. for all incomes from 9,500 marks to 30,500 marks and strictly proportional at 4 per cent. for all incomes over 100,000 marks; while the Austrian rate is a regular degressive rate which approaches 5 per cent. as a limit. This makes the Austrian rate higher for the larger incomes than in Prussia, and to that extent militates against as complete an assessment in the higher grades.

If the wealth of Austria, or the tax-paying capacity (*Steuerkraft*), were the same as that of Prussia the income tax would have yielded 53,000,000 gulden (p. 22); it did yield only 23,000,000 gulden (p. 25). To explain this difference is the main purpose of the author. By reference to the relative proportions of city and rural population in Austria and the known lower tax-paying capacity of the rural districts, as shown by the experience of Prussia, the author reaches the conclusion that this total may reasonably be reduced to about 39,000,000

gulden (p. 25). This he maintains is the highest return that it is possible to obtain. But this is 16,000,000 gulden above the actual returns, and it is this difference which has to be accounted for by the weakness of the assessment.

Comparing the assessment of Vienna with that of Berlin, the author finds that the income tax-payers form a larger percentage of the total population in the latter in all but two grades (namely, those reaching together from 1,000 fl. to 3,600 fl.), and that the total number of tax-payers is 14.98 per cent. of the total population in Berlin as against 13.35 per cent. in Vienna (p. 34). Indeed, he finds that Vienna compares more closely with the Prussian cities of from 50,000 to 100,000 people (p. 37). The conclusion, reached after many fine adjustments, is that the assessment in Vienna is from 15 per cent. to 20 per cent. below the truth. Still he takes the opportunity to congratulate the administration on the "*schöne Erfolg*" of the second assessment of so intricate a tax in that city (p. 41).

When he comes to the smaller cities he finds the assessment far less satisfactory. Only 8.31 per cent. of the population are on the rolls, as against 10.57 per cent. even in the "poverty stricken cities of East Prussia," and 16.36 per cent. in those of West Prussia (p. 53). But worse still are the conditions which are revealed in the rural districts. There he finds that the rural districts of East Prussia show three times as large a proportion of tax-payers, three and a half times as much taxable income per capita, and nearly four and a half times as much taxes paid per capita as in rural Austria. That is, taking the assessment in East Prussia — the poorest district, as represented by the returns of the income tax — as the lowest *niveau* to which the assessment in the rural districts of Austria should rise, he finds that not more than one-third of the taxable citizens made any return (p. 67). Stated in another form, every resident of Vienna paid as much toward the income tax as thirty-six countrymen in Austria, while a resident of Berlin paid only as much as seven countrymen in Prussia (p. 27). Many other comparisons, equally instructive, are worked out in great detail, and the conclusion seems irresistible that the assessment was very faulty outside of the great cities.

The essay closes with an estimate of the proper returns to be expected in each of the different sections of the empire and from the different classes, and with a vigorous plea for an improved assessment in the future. He is still hopeful that the introduction of the income tax

can be made to work a substantial reform in the Austrian tax system, and to afford relief from other taxes which are more burdensome.

In spite of the whir of the statistical machinery, which occasionally distracts the reader's attention from the main line of thought, the essay is very interesting, and contains much information that will appeal to the general student of economic conditions, as well as to the student of taxation.

CARL C. PLEHN.

The Anthracite Coal Industry: A Study of the Economic Conditions and Relations of the Co-operative Forces in the Development of the Anthracite Coal Industry of Pennsylvania. By PETER ROBERTS, (With an Introduction by W. G. SUMMER.) New York: The Macmillan Company, 1901. 8vo, pp. xiii + 261.

A FIELD of economic history but little cultivated as yet, but one which promises as fruitful results as are likely to be realized on the historical side of economics, lies in the study of the development of the more important industries of the country. Such a study one would expect to disclose in concrete form the operation of economic forces, show the stages of development through which the industry has passed, the relation of the industry in hand to general industrial development, and such a picture of present conditions and tendencies as would make possible some generalizations as to the future.

The volume before us, dealing with an industry which from the beginning has been full of interest because of the many problems of industrial organization it has presented, and because of the picturesque way in which it has frequently met them, only partially meets these expectations. The author, it is true, disclaims the purpose of dealing with all phases of his subject, and has reserved for a second volume (to appear in the near future) the treatment of the "social and moral conditions prevailing" in the region. We may assume, therefore, that he has completed his study of the economic side of the industry, and with this in mind one may well express disappointment with the book.

The first two chapters deal with the deposits and the methods employed in developing the coal beds. Nowhere can be found so clear

and interesting an account of these subjects as is here presented. The third and fourth chapters deal respectively with "Capitalization" and "Transportation." Here one would expect to find centered the chief interest of the book from the purely economic point of view, but it is just here that the book is the weakest. Under "Capitalization" are discussed "capital's transforming power," "appreciation of coal land," "estimate of capital goods," "the cost of production" (the best part of the chapter), and "distribution of productive wealth;" but there is no hint that there is, or ever has been, any question as to over-capitalization or of the bearing of this question on the development of the industry or on the career of the companies engaged in it. The object of the chapter on "Transportation" (pages 61–82) "is to trace the development of these means of transportation and to show their relation to the anthracite coal industry." Whether one seeks to learn of the development of particular roads or the means of transportation leading to the various markets, one is sure to leave the chapter unsatisfied; and of the two characteristic features of the industry which are inseparably connected with the subject of transportation, viz.: (1) the union of carrying and mining privileges in the same company, and (2) the various pooling arrangements of the carriers, the one is barely mentioned and the other receives but a scant half-dozen pages. As an economic study that shall lead to an understanding of the large lines of development of the industry this seems a grave defect. The other chapters of a distinctively economic character, on "Employees and Wages" and "Reclaiming the Waste," are far more satisfactory.

Turning to those chapters which deal with the social rather than the economic aspects of the industry, we find the most valuable part of the book. The author's evident familiarity with present conditions, gained from long residence in the anthracite region, makes his study of mine inspection, labor organizations, accidents, etc., of the greatest value. One must go far, indeed, to find a more painstaking and appreciative presentation of industrial conditions than is here given. The cause of unionism is firmly upheld and the urgent need of organization is argued, but the author does not hesitate to condemn the practices and spirit often exhibited by the union. Sympathy for the workingmen does not blind him to their faults or deter him from denouncing them. One merit of the book, which shows itself particularly in this part, should be mentioned. The author is not a student

of science for the sake of science, but for the sake of men. He is not content with pointing out the fact of the existence of evils, but goes beyond to seek the remedy for them. Hence his urging with great moral earnestness "facts which labor ought to know;" hence also his insistence upon "possible improvements by the syndicate." Freed but recently, it seems, from the "spell of utopian socialism," he defends with the zeal of a convert and the vigor of one who uses new weapons, the captain of industry and capitalistic production. Consolidated control, he thinks, will lead to stricter discipline in the mines, and this will result in a great saving of life and property; it will introduce improved methods of production and secure better administration, avoiding the waste of duplication and competition; and it may be expected that certain abuses hitherto practiced by individual operators will be reformed—such as those connected with the "pluck me" store and the sale of supplies; while enlightened self-interest should lead to the adoption of a system of settling labor disputes less disastrous than strikes. The duty of the "syndicate" to take more than a cash interest in a community from which so much wealth is derived by it is urged with great force. The author is less concerned with the sins of commission, with which consumers of coal charge the trust, than with the sins of omission which have left everything yet to be done for the physical, moral, and intellectual uplifting of large masses of population in the community. "There are," he says, "pathological symptoms of moral degeneracy in anthracite communities which demand strong and vigorous remedies, and the means to apply the remedies should be supplied by the persons who reap large dividends from anthracite mining."

The book has an index and numerous excellent maps and charts, but no bibliography. The only indication of the authorities used is found in the running references in the texts, and these are not frequent. The study is far from strong on its historical and economic sides; the arrangement of material is often crude; and the author frequently fails to see the forest for the trees. Nevertheless it is a valuable contribution to industrial history on account of the excellent description it gives of the social conditions in an important industry.

GEORGE O. VIRTUE.

WINONA, MINNESOTA.

1. *Die Arbeiterschutzgesetzgebung in den europäischen Ländern.* By DR. J. H. VAN ZANTEN. Jena: Verlag von Gustav Fischer, 1902. 8vo, pp. xii + 338.
2. *Protokoll über die am 27. und 28. Juni 1901 abgehaltene Conferenz betreffend die Ausgestaltung der Arbeitsvermittlungsstatistik.* Wien: Alfred Hölder, k. und k. Hof-und Universitäts-Buchhändler, 1901. 8vo, pp. 135.
3. *Die moderne Arbeiterbewegung in England.* By WILLIAM SANDERS. Frankfurt a. M.: Verlagsinstitut für Socialwissenschaften, Dr. Eduard Schnapper, 1901. 8vo, pp. 32.
4. *Report of the Chief Labour Correspondent on the Strikes and Lockouts of 1900.* Published by the Labour Department of the British Board of Trade, 1901. 8vo, pp. xciii + 120.
5. *Second Abstract of Foreign Labour Statistics.* Published by the Labour Department of the British Board of Trade, 1901. 8vo, pp. xi + 325.

THIS group of publications is one of the many reminders of the important place which the labor problem occupies in modern civilization and of the scientific attention which is being given to the subject. Of the European countries little Holland is one of the last to feel the need of coping with this problem, and to the better understanding of it Dr. van Zanten, who is assistant in the city bureau of statistics and secretary of the building trades' labor bureau in Amsterdam, has made the latest scientific contribution. The volume which bears his name is a German translation from the Dutch of the first part of an essay on the subject, "The Regulation of the Labor Contract in Different Countries and How it Should Be Regulated in Holland," which the author has been preparing for a prize offered by the "Society of the Province of Utrecht for the Promotion of Art and Science." This first part has already received honorable mention, and the author has been thereby induced to publish it without waiting to complete the essay. The present volume, as the title indicates, treats of European conditions exclusively; and the immediate object of the work is to present a comparative study of the labor laws of the continental countries which will serve as a guide both to those who are entrusted with the enactment of labor legislation and to those who, as employers and employees,

are intimately concerned with present labor regulations. The volume is well planned for that purpose, a chapter being devoted to each of the leading countries considered, and in each case similar subjects being treated in the same order. Thus each chapter discusses, naturally and in the order given, the following topics: persons who may not enter into a contract; persons who may enter into a contract; the terms of a labor contract relative to the length of the work-day, wages, care of the employer for the health and life of the employee, other mutual duties of the parties to the contract; time length and termination of the contract; apprenticeship; the settlement of disputes; the enforcement of labor laws and contract stipulations. In general, the author discusses such protective legislation as is meant to offset the disadvantages which the employee in relation to his employer suffers in modern industry. In addition to the eight chapters which deal with these topics there is by way of introduction an excellent historical sketch of protective legislation in the nineteenth century, and the volume closes with a general comparative summary. Another excellent feature of the book is the classified arrangement at the beginning of each chapter of the specific labor laws of the particular country under discussion and a general bibliography of the other material used. Every page discloses that thoroughness of detailed research for which continental scholars are so well known; and while Dr. van Zanten seems to have had in mind at first the preparation of a work to meet the special needs of his own country, he has turned out a volume that will be of value wherever the labor problem is seriously studied.

Another phase of the labor problem which is receiving more scientific attention in Europe than it has heretofore been given, is reflected in the conference of the officials from the various Austrian labor bureaus and agencies which was held in Vienna last year, a good account of which is given in the above-mentioned *Protokoll*. The purpose of the conference was to discuss the adoption of uniform methods of keeping labor statistics in the various institutions that have to do with that subject, and to bring such institutions into closer relationship with the bureau of labor statistics recently established in connection with the Austrian ministry of commerce. When this bureau of labor statistics was created, in 1898, it was directed, in the prosecution of its work, to seek the co-operation of the state and communal authorities, the board of trade, the workingmen's accident insurance institutions, the trade unions and other workingmen's institutions; and these various

bodies were directed to render the bureau all necessary assistance. To this end the central bureau called a conference of representatives of these bodies in 1899 and discussed with them in a tentative way the subjects considered more fully in the recent conference. Prior to this time there had been no uniform plan of registering labor statistics in those various institutions, the chief function of which is to find employment for persons out of work; and some of them had kept no records at all. Thus, while the guilds were required by the Industrial Code to keep a register of workmen members who were out of work, and of employers in need of workmen, it was found as a result of an inquiry some years ago that out of the forty-two guilds in Vienna thirty-one had kept registers, but that only eleven were able to give statistics on the work done. On the other hand, the Association for Labor Registration (Verein für Arbeitsvermittlung), founded in Vienna in 1885, whose special aim is to assist work-people who are not members of the guilds in finding work, has kept excellent statistical records, as have many if not most of the various other 2,800 labor agencies in the state. But there have been almost as many different methods of registration as there have been agencies; hence the present movement for uniform methods and for co-operation and closer association with the central bureau. The conference seems to have been well attended considering the newness of the movement, some sixty representatives from the leading organizations and agencies being present, and among them the minister of the interior. Dr. Victor Mataja, director of the new bureau of labor statistics, presided. The deliberations of the conference had chiefly to do with four things: (1) principles which should guide in the uniform registration and preparation of statistics for monthly reports; (2) plans for preparing uniform annual reports; (3) methods of registering the unemployed who while in search of employment receive help at the workmen's relief stations (naturalverpflegsstationen); (4) a uniform system of registering vocations and trades. Action was taken on these points and appropriate schedules for each class of statistics were adopted, so that the monthly and annual reports from the various organizations would correspond in form with those of the central bureau. It was also recommended that the various employment agencies throughout the state constitute themselves intelligence offices for those having workmen's dwellings or workshops to rent and those desiring to rent such dwellings or shops, as is done in a number of the industrial centers of Germany.

Die moderne Arbeiterbewegung in England is the title of an address given by Mr. Sanders in Frankfort on the Main before the German Society for Ethical Culture. Mr. Sanders is Secretary of the Battersea Labour League, London, a member of the Fabian Society, and a lecturer on social reforms. The address is of interest as giving one the point of view of a labor leader with strong socialistic leanings. The author confines himself to a discussion of the efforts of the socialistic class of the English workingmen during the last decade to establish an independent political party. This movement he identifies with the so-called "new unionism" which began with the attempts to organize the unskilled laborers during the '80's, and which received its greatest impulse from the successful organization and strike of the London dock laborers in 1889. The successful attempts at organizing the unskilled workmen gave trade unionism a decided impetus throughout Great Britain, and a feeling of solidarity among all the working classes was aroused, with the socialistic element in the lead. Out of this feeling of solidarity grew the "Independent Labour Party," a name, by the way, which was adopted by the socialists so as not to antagonize the more conservative elements in the old trade unions. Mr. Sanders describes the active campaigns which soon followed to secure a purely labor representation in Parliament and the progress which was made in securing representation in local government boards such as the London School Board and the London County Council. As a result of such representation, these local boards, as the author points out, have brought about, in many instances, a number of innovations, such as providing dwellings for the working classes, establishing "fair wages" for laborers engaged by the local governments, and requiring all employers doing work for the local government to meet the same standards. All such results — some of which are certainly doubtful gains — the author regards as marks of great progress. Judging from the experience of the last ten years Mr. Sanders concludes that as a political organization the Independent Labour Party is not likely to be able to do more than at times to hold the balance of power, and that ultimately it will identify itself with the extreme left of the Liberal Party; and that conclusion is undoubtedly sound. Moreover, as regards the further progress of the party in local government affairs, while he considers the innovations referred to above as marks of progress, he admits the fact that where the socialists have secured complete or nearly complete control they have not exercised it for the

good of the whole community but solely in the interest of their own class. Thus in the common council of West Ham some four years ago the socialists secured a majority. They forthwith had workingmen's houses built, founded schools of technology, provided city workshops, and realized, so far as the legal restrictions would allow, every socialistic ambition. But the town soon came to grief. In consequence of the fact that these public institutions were to be established and that the workmen were to be engaged directly by the city without the intervention of private employers and under conditions that were highly favorable to the workingmen, the number of employees on the town pay-roll greatly increased. These employees were citizens of the place and their political and trade organizations controlled the majority of the town administration, who no longer represented the citizens as a whole, but worked simply to secure the interests of the socialist class. These selfish interests were pushed so far that the whole public service of West Ham was soon disorganized, its treasury emptied, and a debt incurred which is still an almost insupportable burden for the taxpayers. Because of such disastrous experiments Mr. Sanders concludes that before much further progress can be made by the socialists they must be educated ethically. In that conclusion also he is undoubtedly right; and it may be added that when the different classes of society are so transformed in character that none of them will be guilty of such selfish errors as those referred to there will be little need for a program like that of the Independent Labour Party.

The Report of the Chief Labour Correspondent on Strikes and Lockouts is the thirteenth annual report on the subject published by the British Board of Trade. It contains an account of each dispute for the year 1900, with detailed statements as to the locality, the number of establishments involved, the number and occupation of those thrown out of employment, the cause of the dispute, the duration of the same, and the result. The work of the boards of conciliation and arbitration and the agreements reached in settling disputes also received attention. The number of strikes and lockouts in 1900 was less than for any one of the four previous years—the period covered by the comparative table given. The number of men involved and the amount of time lost, however, were greater than in the year preceding, though not so great as in the years 1897 and 1898. As usual, most of the disputes were in regard to wages. Of the 648 which occurred during the year, 202 were settled favorably to the employees, 211 favorably to the em-

ployers, 221 were compromised, while 14 were not settled. The largest number of disputes was among the building trades; the largest number of men thrown out of employment, among the miners and quarrymen. Most of the differences were settled by negotiations between the parties directly concerned or by their representatives. Of the 648 disputes three-fourths were so arranged, and these embraced 82 per cent. of all the persons concerned. The number of disputes settled by arbitration or conciliation was somewhat less than in the previous years. It should be understood, however, that the settlement of actual strikes consumes but a small part of the time of the conciliation and arbitration agencies, most of it being given to preventing stoppages of work. Thus of all the disturbances over wages and hours of labor in 1900, 58 per cent. were settled by these or kindred agencies and strikes and lockouts prevented. The report contains complete statistical information on all the topics discussed and texts of certain agreements and awards terminating disputes.

The Second Abstract of Foreign Labour Statistics is a continuation of a similar volume which was published in 1899. As stated in the introduction to the present number, "this series is intended to be supplementary to the statistical abstract for the principal and other foreign countries which has been compiled for many years in the commercial department, and also as companion volumes to the *Annual Abstract of Labour Statistics of the United Kingdom*." The first volume dealt with the four subjects of wages, hours of labor, trade disputes, and cooperation. In the present volume statistics on these subjects are continued, and in addition statistics are given on the subjects of conciliation and arbitration, trade unions, and workmen's insurance. The countries represented are Russia, Norway, Sweden, Denmark, Germany, Holland, Belgium, France, Switzerland, Italy, Austria-Hungary, the United States, and Japan. A reference list of the statistical tables which it contains and a good subject index make the *Abstract* a very useful volume.

J. E. GEORGE.

NORTHWESTERN UNIVERSITY.

Ninth Biennial Report of the Bureau of Labor Statistics for the State of Iowa, 1899–1900. C. F. WENNERSTRUM, Commissioner. Des Moines: B. Murphy, State Printer, 1901.

THIS report of nearly 600 pages presents comparatively little information of economic value in addition to that found in the, rather

misleading, tables of manufacturing statistics of the Twelfth United States Census which are here reproduced. This seems due more to the limited appropriation at the disposal of the commissioner and the extent to which he is hampered as to his method of investigation, than to the evident inexperience of that official. The law establishing the bureau and prescribing the duties of the commissioner, besides directing him to obtain and report extended information regarding its industries makes him also an advertising agent of the state's resources, requiring that:

> He shall by correspondence with interested parties in other parts of the United States, impart to them such information as may tend to induce the location of mechanical and producing plants within the state, together with such other information as shall tend to increase the productions and consequent employment of producers.

In addition to these duties, though the commissioner is given no power to make or enforce any regulation necessary for the health or safety of employees, he is also charged with the inspection of factories, workshops, and business houses of the state. He is to "examine into the methods of protection from danger to employés, and the sanitary conditions in and around such building and places, and to make a record thereof."

To accomplish all this the commissioner is allowed but one deputy and not a single clerk or stenographer and a limited amount for traveling expenses. The fact that there is no limitation as to the amount to be expended for printing may perhaps account for the space given to matters that would appear of minor importance.

The most important work of the bureau is declared by the commissioner to have been that of factory inspection. It is, as he says, "nothing less than astonishing that with such a very considerable population devoted to manufacturing, Iowa is among the very few states without statutory regulations and inspection of the employment of men, women, and children within the factories of the state.

One of the most important matters to which the commissioner calls attention as the result of his investigations is the large number of children employed in the factories of Iowa. He says:

> Many of these children were as young as ten years. In many cases the children were employed at tasks that involved hard and laborious work. They were employed for the same number of hours as mature men, and were given no privileges or special exemption from work. I took special pains to

observe the physical condition of the children that I found working in the factories and they impressed me by their wan and overworked condition.

The commissioner quotes the United States census as showing an increase in the number of children under sixteen employed in the factories of the state as having increased from 1,644 in 1890 to 1,888 in 1900, and states that he is "strongly of the opinion that the returns are very much below the actual number so employed."

In this he is unqestionably right though he seems not to comprehend how the method of computing average numbers adopted at the last census tends to reduce the number of employés reported, as compared with the number reported in 1890, and especially of the number of children, a class largely employed in industries that give employment but a part of the year.

Commissioner Wennerstrum quotes with apparent confidence the tables of the United States manufacturing census for the state showing an increase in the number of establishments from 7,440 in 1890 to 14,819 in 1900 or over 99 per cent., and in the average number of wage-earners from 51,037 to 58,552, or 14 per cent., an apparent increase in the number of establishments of 7,515 and of wage-earners of but 7,379, and seems not to doubt the correctness of the figures; as a matter of fact the increase in the number of establishments is due largely to the inadequate enumeration of 1890, when there was reported in some industries which show a great increase in 1900 particularly those located in the rural districts, a much smaller number of establishments in 1890 than in 1880. The enormous increase in the number of establishments in 1900 is largely due to a more thorough enumeration, which more thorough enumeration should show also a large increase in the number of wage-earners. That it fails to do so is manifestly due to the radical change in the census method of estimating average numbers. With an increase of 40.5 per cent. in the urban population it is absurd to suppose that the number employed in industries principally located in the cities has increased but 14 per cent. and less than the rate of increase in population of the state.

Unfortunately the Iowa Commisioner of Labor is so hampered by a statutory form of investigation, as well as by lack of means, that his report of the number of wage-earners and their earnings is of even less value than the statistics of the census.

Stating his objection to the statutory blank by which he is required to obtain information the commissioner says:

First it applies only to persons or corporations employing five or more people. The returns under the blank consequently afford us only partial information as to manufacturing establishments of the state. The second objection is it includes many establishments not factories and industrial establishments proper; as, for example, hotels and restaurants that may employ five or more people; third, there is a general objection to limiting the bureau to a prescribed and unchangeable blank. No other departments of labor so far as our knowledge goes are so restricted.

Employers of five or more wage-earners in establishments of every kind are required by law to make return to the bureau on this prescribed blank and to make oath to the same.

Returns were obtained for but 1,428 establishments for the calendar year 1899 and 1,285 for 1900 which is less than one tenth as many for all industries as was obtained by the census for manufacturing industry alone. This would seem to indicate that but a small proportion of the establishments of this state employ so many as five wage-earners or that there was an extensive failure to make returns, though probably it is due in a measure to both causes. Though agriculture is by far the most important industry of the state we find it represented in this report by but three farming establishments, a florist establishment, three nurseries and one poultry raising establishment. Of the farming establishments one is a truck farm combined with a produce and commission business having sixteen employés and the others are farming and stock raising establishments in Sac county employing together 160 males and 22 females in 1899, and 185 males and 2 females in 1900 which paid in wages $32,494 and $42,431 for each year respectively, this includes board. These establishments are reported as in operation 40 full and 10 short weeks in 1899, and 37 full and 15 short weeks in 1900. These figures seem of considerable value as indicating the earnings in the most important industry of the state. Average earnings for all industries obtained by dividing the total wages reported for all industries would have no value whatever, for the number of employés, includes those of banking, insurance, real estate and mercantile establishments together with street car, telegraph, telephone, and messenger service employés and other classes of wage-earners nor is any such average presented, neither is there any attempt at classification except as reported by counties. A very complete report of railroad employment and salaries for the state is given from data obtained from the railroad-commissioner's reports and the wage schedules of the different railroad shops.

This report also presents information obtained from wage-earners themselves in reply to thirty-nine questions as to employment, income, expense, insurance, and savings and the conditions under which they work together with their opinions as to needed legislation. Replies were obtained from so few (268) that the results of this investigation seems of less value than that attached to it by the commissioner.

In this report we find also the results of an investigation as to trades unions of the state, the information having been mostly obtained through the secretaries of such organizations.

The commissioner declares that "statements are frequently made that associations of wage-earners as conducted now, tend to drag down the more skilled to a common level, and that trades unions are a hindrance to a skillful workman hindering him from securing the proportionate increase of remuneration due to such skill or ability." As disproving this and emphatically establishing the advisability of adhering to the minimum wage principle he presents statistics showing minimum and maximum rates of wages for each craft in different localities. As no data are furnished of the numbers receiving the minimum and maximum rates of wages it is difficult to see how the commissioner's tables prove anything whatever. That a single workman in each union who might perhaps be a foreman received a higher rate of wages than the rate established by the union certainly has no significance.

Strikes in Iowa since 1894; co-operative and profit sharing; and manual training are other subjects of investigation of this report. From replies received from county and city superintendents of schools throughout the state as to what measures have been taken to establish manual training in their schools, it appears that but very little is being done in this direction. Part second of this report presents a monograph by Mrs. Bertha Horack Shambaugh, of Iowa City, entitled "Some of the Economic and Industrial Phases of the Amana Society or Community of True Inspiration," the investigation having been undertaken at the commissioner's suggestion and urgent request. Following Mrs. Shambaugh's study is a paper on free employment offices in the United States by Miss Kate B. Miller, of Indianola, and a short sketch of the Icorian colony (now extinct) in Adams county. There is also in part second, a monograph on "The Influence and Value of Labor Statistics," by the commissioner of labor, in which he very highly praises the work of the various labor bureaus; also an article by the

same author on "The Workings of the Department of Labor," revised from an article in the *Cosmopolitan Magazine;* a paper on "The Kindergarten as an Educational Force," by Professor Francis E. Cook, of St. Louis, and another paper on "Manual Training *vs.* Trade Schools" by Dr. Calvin M. Woodward, also of St. Louis. These latter papers were read before a convention of officials of bureaus of labor statistics at St. Louis in 1901.

H. L. BLISS.

The French Revolution and Modern French Socialism: A Comparative Study of the Principles of the French Revolution and the Doctrines of Modern French Socialism. By JESSICA PEIXOTTO. New York: T. Y. Crowell & Co., 1901. 12mo, pp. viii + 409.

A VERY interesting parallelism between many of the principles underlying the French Revolution and the doctrines of modern French socialism has led Dr. Jessica Peixotto to make a comparative study in which she analyses both principles and doctrine.

Though the difference between the thesis of natural rights at the close of the eighteenth century and the science of economics at the close of the nineteenth evidence the great difference in the two movements, the issues have been essentially political, and the point of similarity at least in the introductory period has been a common dissatisfaction with existing conditions.

In historical exposition Dr. Peixotto is exceedingly definite, and in the use of documentary evidence very accurate. Her references prove a wide knowledge of the literature of the subject, and in correlating what has already been done in the field of theory her work is invaluable. However, at the very outset she tacitly disclaims the importance of an historical method which has been largely accepted by recent writers upon the French Revolution and upon that even more interesting period preceding it. She almost entirely eliminates the influences of economic and social conditions from her discussion and as a consequence, one must lay aside the theory that the uncertain structure of the revolution was reared upon a basis of social and economic injustice, if one is to follow her into the realm of "pure ideas" where she searches for the great causes of the revolution.

An analysis of any epoch in the intellectual life of a given society [she says] seems clearly to show two kinds of agencies at work during the process

of development — the one, a series of cultural influences reshaping the fundamental of men's thoughts; the other, certain social facts which make way among the masses for the new thoughts which have previously been developed.

In her analysis, however, the cultural influences take precedence of the social, and indeed exclude them in her present work. Whether ideas do give birth to social conditions or spring from them, the interaction cannot be disregarded without seriously weakening the argument for or against the supremacy of certain of the ideas discussed.

Granting that what Dr. Peixotto has emphasized as causes were, in reality, conditions from which she desires to take her point of departure, it is very interesting to note the order in which they are placed: first comes the rise of contempt and even active revolt in the time of Louis XV.; then the vacillating policy of Louis XVI. and the foreign influences and the part played by the salons, cafés, and propagandist centers of Paris. To sum up in a word — though that may be a little unjust to the author — the causes of the French Revolution, or the causes which led to the enunciation of the principles underlying it, lie in the political and social decay of the period.

These statements can hardly satisfy the student of causes, and it is certainly necessary to ask Dr. Peixotto to explain, if possible, the reasons of the decay. There is a hint of such an explanation when she says the lack of employment roused the lower classes to the pitch of open discontent.

In dealing with the principles themselves the author brings out very clearly the nature of their expression in the fundamental conceptions of man, nature and the social contract; and she discusses in detail the rights of man and the relation of the state and the individual. This discussion leads very naturally to an introductory chapter on modern socialism, which is the most vital part of the book. The international character of the movement necessitates a tracing of the German as well as the more idealistic school of French socialism and thereby throws light upon the conditions common to both countries. Some of the general statements are well worthy of citation, for instance:

> A pessimistic view of the present is the first essential to the making of a socialist, but this alone will not suffice. . . . . To be a socialist a second characteristic is equally essential. Along with a pessimistic attitude in regard to the present there must go an unquenchable hopefulness in regard

to some better future to be realized here on earth. Such hopefulness seems to have been a special privilege of our time. It has been well said that the main trend of thought in our age has been the conscious pursuit of social well-being.

Dr. Peixotto's interpretation of the Marxist position may be questioned, and her statement that "any organized experiment, based upon conscious social service, will depend for its success upon the stage of development reached by that fundamental and decisive factor, the individual," is almost a truism, but it leads the reader back to the starting point in the circle by bringing up the question: "How is the individual to be developed, and where do the cultural influences have their beginning if not in the environment which is, in turn, conditioned by the economic status of society?" Upon that status the author has not touched, and for that reason her analysis falls short of the demands made upon it by interested students of the French Revolution and French socialism.

CHARLOTTE TELLER.

Histoire du Socialisme Française. Par PAUL LOUIS. Paris: La Revue Blanche, 1901. 12mo, pp. vii + 313.

"THE history of French socialism, which is not to be confounded with the history of the working people in France," is in reality a study of the rise of the distinct proletariat class and of the political and social vicissitudes of its existence since the French Revolution. "The formation of what is called, rightly or wrongly, the Fourth Estate is only one aspect of the problem" which Paul Louis, the French writer, has set for his task in his latest book.

The serfs of the old régime had to wait centuries and centuries before having a program, and even then the program was from outside. The slaves of the ancient societies never played a distinct rôle, either in Athens, Sparta, or Rome. That which distinguishes the proletariat from all the oppressed classes which preceded it, and were freed before it, is that it professes theories so decided that no one, through irony, has declared them dogmas. In this respect, by the clearness of its demands, it even prevailed over the bourgeois parliament before 1789. The historian has, as his mission, to search for the origin of these principles, study their growth during the century, and their relation to the economic *milieu* from which they have evolved.

M. Louis maintains that most of the modern socialistic ideas, whether communistic or collectivistic, have had their origin in France.

Germany, he says, has only given them their final form and furnished the dialectic, as it were. The author takes for granted that the program of social democracy is known to the readers, and each chapter is concerned with some historical phase of the evolution of modern socialism: property rights and the eighteenth century; Babeuf and the revolution of 1789; the precursors (Saint Simon and Fourier); the first proletariat insurrection (1830–40); from Louis Blanc to Proudhon; the social uprising of 1848; the commune (1871); and then, the time from the commune to the crisis (1871–98).

The Paris commune crowned the socialist movement of the Second Empire, as did the June insurrection the great struggle from 1840–48; but there is no comparison in these two "gigantic attempts" of the proletariat. The first was broken up on the field by all the other allied social forces; the second held Paris for seventy days, established a government, and disposed of an army. Like the revolution of 1789, the commune was not altogether egoistic, whereas, in 1848 the chances of death were embraced rather than death by slow starvation. The comparison that Louis makes between the two is exceptionally valuable in bringing out the development of certain modern principles.

Since 1871 there have been other clashes than those between the Marxists and the idealists, but there has never been any real break until very recently, because neither one of any two antagonistic organizations had taken any initiative in absolute disaccord with the fundamental principles. The case of Millerand brought about a crisis, for it practically divided the movement into two factions. Up to that crisis there were two distinct phases in the history of the proletariat after 1871 — one educational and collectivistic; the other, a readjustment, as it were, to the rapid industrial and economic changes which helped to crystallize the doctrines and principles. Both of these phases are carefully examined by Paul Louis, and made to explain the internal conflicts which have kept arising during the whole period. Industrial and economic confusion, but in the midst of the chaos, the proletariat rose like a stable pivot.

With the elections of 1898, the author closes his analysis, and points to the great importance of the last four years in the history. Millerand in the Waldeck, Rousseau cabinet, and the Dreyfus affair, are the two most significant events; the question of their influence upon French socialism is as yet unanswered. It is quite certain that the origin of the movement, now so great, is to be found "on the eve of

the revolution, beyond the tremendous cyclone of ideas, which overturned all the conditions of old France." And in pointing out this origin, the author makes plain the troubled path of the historians who have neglected to ascribe the growth of the new movement to economic soil and industrial storms, but have searched for it in the hothouses of intellectual discontent. C. T.

L'Evolution du Socialisme. By JEAN BOURDEAU. Paris: Félix Alcan, 1901. 12mo, pp. 330.

M. BOURDEAU'S presentation of the evolution of socialism does not lose in value to the general reader because he includes in it more than socialistic theories and platforms. He devotes chaps. iv, vi and vii, more than a third of the whole volume, to respectively "Municipal Socialism," "Strikes and Labor Unions," and "The Trades Union Movement in France." Many readers, both socialists and their opponents, will object to the label of socialism put upon such undertakings as municipal railways and housing, but the author justifies this treatment from the growing tendency among central authorities to interfere in what has hitherto been the field of individual enterprise. The author thinks that the peculiar nature of English municipal socialism is its unconfessedness, being entirely practical, and in the eyes of most Englishmen devoid of any theoretic socialism. In Germany, the land of state socialism, the social-democratic party is turning its energy to capture the municipalities. The growth of this form of socialism in France has been rapid. In 1896 socialistic councils were elected in eight or ten great cities. An interesting sketch of the operation of municipal socialism in the typical towns of Roubaix and Dijon is given. The former is an adjunct of Lille, and is a true Marxist city, with its great divergence of rich and poor and the absence of a middle class. Numerous "benefits" have been established, as crèches, baths, free meals for school children, etc., but the great difficulty encountered has been the high expenditures that these improvements have entailed. Taxes have increased, and the *octroi*, the most objectionable, has only in two cases been abolished by socialistic municipalities. Other criticisms upon the socialistic régime have been that its benefits tend to be confined to one class, that the clerical party especially has suffered, and that, as in all other parties, true interests are often sacrificed to political exigencies.

This chapter has been singled out for mention, not because the author confines his discussion to this phase of socialism, but because the French have been leaders in this activity. The early history of French socialism is outlined in the first chapter. The presentation in the second chapter of the theories and schools of contemporary socialism shows not only familiarity with the doctrines, but also an insight into the causes which made the movement. Here a phrase is coined that is worth remembering, *le socialisme instinctif*. "The majority of them, even among the leaders, are socialists from instinct. Socialism is to them a vigorous formula of discontent and revolt" (p. 49). "Socialism represents more or less faithfully the sentiment, the hopes of the laboring classes" (p. 52).

In this book the reader becomes acquainted with the men who have built up the party that has played such an important part in French politics during the past two years. The human interest has been well preserved and the vivid style holds the attention. And withal the author preserves throughout an unprejudiced attitude that neither advocates nor condemns.

S. G. L.

M. T. Cicerone e le sue idée sociali ed economiche. By E. MASÈ-DARI. Torino: Fratelli Bocca, 1901. 8vo, pp. 390.

MASÈ-DARI read Cicero in his youth. Later, as a student of finance, he renewed his knowledge of Cicero. From these later studies grew the present essay. He was shocked by Mommsen's drastic criticism of Cicero's career and stimulated to fresh exertions to understand his life and writings. He concedes that there are defects in the character of Cicero, and admires his works more than the man.

The essay is primarily critical; the attempt is made to sketch the motives and fundamental facts in the life of Cicero and correlate the qualities of his actions and his intellectual conceptions with the most important characteristics of his surroundings. The book, consisting of less than 400 pages, is divided into two nearly equal parts, the first of which discusses the social and political ideas of Cicero, while the second deals with his economic views. The subdivisions of Part I may be briefly summarized as follows: A survey of the moral, public, and intellectual character of Cicero; his comparative affluence; his theory of equality — division into classes, plutocracy, and the social

equilibrium; the social nature of religion; justice and legislation; demagogy and communism. The subdivisions of Part II which deals with Cicero's economic ideas are the following: The relations of the state and private economy; public works and the appropriate functions of the state; finance and the state; customs and tribute; the tax-gatherers and their economic function; agrarian laws and agrarian policy; the economic concepts of Cicero — of utility, wealth, credit, etc.; labor free and slave — agriculture: credit, usury, and the money-lenders.

This brief survey of the topics considered shows the book to be what its title indicates, a summary of the social and economic ideas of Cicero. The word social is to be taken broadly; it embraces a treatment of Cicero's political concepts. The subdivision which is most characteristically social in its point of view is the fourth chapter (of Part I), which expounds the social origins and the social service of religion. Chapters three, five, and six (of Part I) are a fine summary of the fundamental political concepts of Cicero. Part II constitutes a fairly complete exposition of political economy in its main outlines. The book as a whole is a contribution to our knowledge of what Masè-Dari very correctly calls a neglected side, an almost unknown aspect of the mind and life of Cicero. It is to be regretted that in its Italian form it will not be generally accessible to English readers.

ISAAC A. LOOS.

STATE UNIVERSITY OF IOWA.

Storia della Crisi Economica in Puglia dal 1887 al 1897. By SABINO FIORESE. Trani: V. Vecchi, 1900. 4to, pp. v + 168.

SINCE the founding of the united kingdom in Italy that country has been the scene of harassing and well-nigh continuous discords and misfortunes. The union of Italy did not imply that all patriotism for the local despotisms had been transferred to the new state. The central power has adopted oppressive police measures to stamp out this local particularism and so has frequently appeared in the rôle of a harsh repressor. The new political and administrative machinery is far from perfect and there has been a lack of great statesmen since the union. Nor can one look to the monarch for leadership. The constitutional limitations, while giving an extravagant income to the king,

for so poor a country, do not give him great powers, and recent Italian monarchs have not been men of strong personality. The power is in the hands of a nominated senate and an elected chamber of deputies. The average of ability and probity attained by the men of these bodies has been unsatisfactory. As legislators they have been mercurial and in many instances venal. The composition of the legislative chambers, furthermore, reveals the unfortunate struggle which the modern state has to maintain with the clerical party which is blocking progress and dreaming the dream of temporal sovereignty for the church.

The external political relations of Italy have been scarcely less satisfactory. Induced to take part in a triple alliance in which she has not as much to gain as have Germany or Austria, she has been lifted by these political affiliations into the rank of a first rate power, where she does not belong, and has been stimulated to maintain a large army and costly navy. Over one third of the expenses of state are on account of national defense. The same policy has led to unprofitable colonial adventure.

The economic life of Italy is not without much evidence of vitality and here and there achievements which promise well for the future. Within recent years great progress has been made in manufactures and the exportation of manufactured articles has increased. Silk is the most important manufacture, but home-produced cottons have nearly driven the foreign goods from the market. There are a few model iron, steel and machine-making plants and a number of firms manufacturing motors, dynamos and electrical equipments. In the land of Volta and Galvani the magnificent water-powers are at length being utilized for the production of electric power. In banking Italy has distinguished herself through a system of co-operative banks. The most perfect system of bookkeeping known is of recent Italian origin. The workmen of Italy are very extensively organized into associations by means of which they become direct bidders for the execution of both private and public contracts. Economic science has received notable contributions, both in the domain of pure theory and economic history. The monograph at present under review, forming as it does a portion of the second volume of a work entitled *La Terra di Bari*, is evidence of the thoroughly scholarly economic literature of Italy which is devoted to the improvement of the country's industrial practice and public policy.

Nevertheless, the American traveler, who is a business man or an

economist, cannot avoid contrasting the vigor and industrial progress of Germany with the lack of enterprise and organization evinced in Italy. One cannot help seeing that the country is overtaxed and that it is burdened by shiftlessly managed country estates and church endowments and a large class of able-bodied men in orders who ought to be in shirt sleeves. There is an evident neglect of internal improvements. The railway service is inadequate and too expensive for the industrial community. In a rugged country, stretching through a variety of plant zones and where great skill is therefore required in the handling of water and soil and in the choice of cultures, there is neglect of agricultural schools. For a country obliged to employ foreign managers and skilled workmen there is a lack of manual and industrial training.

The book is an essay in the recent industrial history of Italy. It is an elaborate and sympathetic study of the effects of the protective policy upon Apulia, a province in the extreme southeastern part of Italy. The recent tariff policy of Italy, we may say by way of introduction, has undergone several changes. The policy of Cavour was for free trade. This prevailed until 1878. With the increase of American competition the wheat growers of northern and central Italy began to demand protection. This was given in mild form in 1878. As manufacturing began in a small way here and there a new argument for protection was raised. This policy also appealed to the professional politician as a system permitting of constant alteration and profitable connection between the promoter or speculator and himself. A high protective tariff was established in 1887. This tariff, shutting out French manufactures, coupled with strained political relations, was reponsible for the fact that the French treaty which expired in 1888 was not renewed. In its stead a tariff war was inaugurated between Italy and France which endured until 1891. In 1892 Italy improved, in some slight degree, her position by tariff treaties with Germany, Austria, and Switzerland. Finally a French treaty was again made in 1899.

The work of Dr. Fiorese gives evidence of the sharply contrasted interests of north and south Italy. The tariff which benefited the north, with its wheat raising and manufactures, harmed the south by cutting off the sole market for its wine and oil—namely, France. Prior to 1887 Apulia was in a prosperous though transitional condition. Intensive agriculture with small holdings supported some commerce

and shipping. The commercial expansion of Italy and American grain, together with the opening of French markets to Italian products, caused a gradual elimination of grain culture from Apulian agriculture. In the place of grain was planted the vine. This transition was made easy by liberal advances of money from capitalists and ultimately from the banks formed after 1875. These credits were granted frequently on the security of the future income of vineyards. By 1887 the great industry of Apulia had become wine production, and its single market was France. This industry was profitable, the peasants accumulated savings, and prosperity was general. Scarcely was this transition to wine production completed, however, when the tariff of 1887 was enacted and at once created difficulties. It lessened the export to France, produced local distrust, and caused a sharp rise in discounts. Local associations set themselves to study how the surplus of wine might be disposed of. It was proposed that the revenue tax on alcohol be removed so that wine could be used for its manufacture. Meanwhile the government continued with the new policy heedless of the sufferings of the south. The tariff of 1887 was put in force, and the south saw the day of her ruin approaching as the date of the expiration of the French treaty approached. This date brought a complete local crisis. Wages, which had been 3 lire, fell to 70 and 80 centimes per day. The exportation of wine to France, from Bari, which in 1887 had been 814,669 hectoliters valued at 24,400,000 lire, was in 1888, 192,936 hectoliters valued at 4,000,000 lire, and by 1891 it had almost ceased. To add to the confusion the two largest banks of the region, the Banca Provinciale and Banco dei signori Diana, failed in 1889. The actual physical misery of the people was intense. This stimulated in them a hatred of the Italian government which had sacrificed them to favor the north. The state did not increase its popularity by resorting to stringent measures of repression and continuing the burdensome internal direct and indirect taxes. The treaties finally concluded with Germany, Austria, and Switzerland were of advantage to the Italian manufacturers, but of little consequence to the wine and oil producers of the south. Our author closes by saying that the remedy for the disasters of Apulia has not yet been found. It may be added that the new treaty with France has failed to stimulate the industries of the district.

One cannot help feeling at the conclusion of this recital of industrial distress that the encouragement of diversified industry is the wise

policy for the future — at least so long as the tariff policy of Italy is the football of political factions and their unstable alliances. The south of Italy is suitable for a very wide range of crops from wheat and corn to cotton, wine, olives, figs, and almonds, and citrus fruits. Agricultural experiment stations and industrial training schools would seem to be most necessary to insure a wise choice of enterprises, and teach the most approved methods. If state initiative is not sufficient local agricultural associations and chambers of commerce can well afford to unite for their support. The wine industry of Italy has always been unduly helpless in its dependence upon France. Italian wines are sent to France to be there mixed with light thin French wines and resold in the markets of the world at high prices as French product. The Italians can now afford to pay special attention to the manufacture and blending of wines, and push the sale of their products, under their own labels, directly with the consuming countries.

EDWARD D. JONES.

The Early Trading Companies of New France. A Contribution to the History of Commerce and Discovery in North America. By H. P. BIGGAR. Toronto: University of Toronto, 1901. Large 8vo, pp. xii+308.

IT IS a pleasure to pick up a book like this. It is beautifully bound, and when it is opened it behaves as if it were intended to stay open, while the clear printing and wide margins leave the ideas standing out in relief.

The text is an expansion of a thesis presented to the University of Oxford in supplication for the degree of bachelor of letters, and traces "the birth and growth of trade and commerce down to the year 1632 in that portion of North America subsequently called New France." The appendix, which makes up nearly one-half the book, is concerned with the sources, with estimates of their worth. A twelve-page index and a map of New France complete the volume.

The relation of how New France rose from the fisheries off New Foundland to something like the dignity of a colony, with the rigors of the climate, the perils of the wilderness, and unsettled conditions in the home country all against it, is exceedingly interesting. Fish and

furs were the commodities sought. Efforts to get them, particularly the furs, took various forms; individuals and companies, especially those which were given monopolies, engaged in the trade. The conditions seemed to demand permanent trading posts which could be maintained only by strong companies. But no company could afford to keep up a "factory" which would furnish facilities to its competitors. Hence exclusive privileges were granted, with conditions, particularly the sending out of colonists, which were too onerous to be fulfilled. After a company had gone on a few years without doing the impossible — that is, to a corporation, the unprofitable — the charter would be revoked. This became the regular program. By these successive trading companies the early political and commercial affairs of New France were largely dominated.

In 1604–5 the French had to face a tariff problem similar to that in the insular cases recently decided by the supreme court. Furs were brought into France, and an attempt was made to collect duties at the rates levied on goods coming from a foreign country. It was decided that they should pay only the duties which were collected on goods passing from one province to another. The new territory had been occupied by the king's authority, and hence was a dependency of France. There seemed to be no economic influence demanding the exercise of judicial acumen to the extent of showing that a part and a parcel of the country are two distinct things. It is not so difficult, then, to account for the decision, nor is it an indication of lack of mental keenness.

For the development of the country much was due to men like Samuel Champlain, whose energy and ability were a match for the difficulties. The greatness of some of them is perhaps less remarkable than the worthlessness of others, and the struggle with inefficiency was as hard as that against physical conditions.

In the conclusion, it is pointed out that the French have never cared to leave their native land, due, perhaps, at this time to the treatment of those who did venture to settle in the colony. They were severely and arbitrarily governed — which amounts to about the same thing as John Fiske's point, lack of self-government; a natural result with a strong centralized government at home. "Between the two evils of no colonists and excessive governmental control, New France during these years never prospered."

The reader is rarely left in ignorance of the sources of the matter in the text. The notes and references are full — all but excessive. If he can keep his eyes from the foot of the page he will find a good deal of satisfaction in reading the details of the struggles during this time of pioneering. C. C. A.

A Comparative Study of the Administration of City Finances in the United States, with Special Reference to the Budget. By FREDERICK R. CLOW. (Publications of the American Economic Association. Third series, Vol. II, No. 4.) New York: The Macmillian Company, 1901. 8vo, pp. vi+148.

DURING the last few years several important studies in municipal finance have been published. With a few exceptions, these were histories of the finances of single cities. Aside from the statistical tables compiled and published by the department of labor, Professor Clow's monograph is the first comparative study of any considerable scope in American municipal finance.

Mr. Clow has investigated only one section of the field. The nature and the making of the budget, the methods of controlling expenditures after the budget is made, and the methods of accounting and making reports from the body of the book. An introductory chapter sets forth the nature and functions of city government, while a final chapter notes some of the sources available for the study of local finance. The book also contains a list of documents used as "sources of information," and a list of books which have been useful to the author in this investigation.

Even were it desirable, a summary of the materials presented in this monograph could not be made here. The author has collected data from 102 cities by consulting their published reports, by corresponding with public officials, and by visiting about one-fourth of the 102 municipalities. The data are not as full at some points as one would wish, or as they could have been made, had further use of the large public libraries been possible. Though a few errors have been noted, the work seems to be fairly accurate in details. But an occasional paucity of data and an occasional misstatement of fact in such a study are not of great consequence. Its purpose is to present a view of the situation as a whole, and to bring out the typical

and the more common variations with their explanations, rather than to show what holds true in specific instances. This the author has done well.

H. A. MILLIS.

City Government in Canada.— Westmount: a Municipal Illustration.— Municipal Government in Toronto.— Bibliography. By S. MORLEY WICKETT. (University of Toronto Studies: History and Economics. Vol. II, No. 1.) Toronto: The University Library, 1902. 8vo, pp. 64.

TO GIVE a general idea of city government in Canada, or serve as an introduction to its further study, this pamphlet is all that could be desired. It consists of the four separate papers named above; the one on Westmount is by the mayor of that city; the other three are by Dr. Wickett.

The author and editor has made his work doubly interesting to those of us who live in the United States by his knowledge of our own cities and the constant comparisons he makes between them and the cities of Canada. In the most important features Canadians have followed English precedents rather than ours. They have not attracted many foreigners, and the population is almost purely British except for the French in Quebec; the suffrage is restricted; party lines are rarely observed in municipal affairs; officers are appointed without fixed terms, and serve during good behavior. On the other hand, similarity to our conditions is shown in the small amount of administrative control exercised over the cities by the province, in the frequent interference of the provincial legislature with city affairs and of the city aldermen with executive work.

The problem of dealing with local monopolies exists in Canada as everywhere else. Public ownership is rare. Franchises are usually granted for short terms, though in Toronto the gas company has a perpetual franchise. Westmount gives one instance of wholesome public control; the city has a fine library building, the cost of which was defrayed out of the deposit forfeited by a projected gas company.

It is of interest to find that part of a city's revenue in Canada is derived from an income tax. Montreal also levies a business tax based on the rental of the premises occupied, on the plan of the French

impôt de patente; efforts have been made to introduce this tax in Toronto. Westmount supplies its needs liberally, with rates of taxation only one-third as high as those in Montreal. Toronto has in part followed the New York plan of financial administration by establishing a board of control with sole power to prepare the annual budget; a two-thirds vote of the council is required to overrule this board. A similar concentration of responsibility has been brought about in Montreal by the creation of a finance committee in the council; a three-fourths vote of the council is required to change the action of the committee.

These papers show that city government is reasonably successful in Canada. "But it will not do," says Dr. Wickett, "for Canadians to boast. They are not yet out of the wood."

F. R. Clow.

Industrial Democracy. By Sydney and Beatrice Webb. New Edition. London: Longmans, Green & Co., 1902. 8vo. pp. xi + 929.

It is unnecessary here to say anything in commendation of Mr. and Mrs. Webb's great book. Its merits and services are too well known to economic students to call for renewed discussion. The present edition differs from the earlier one in that it is in a cheaper form — the two volumes of the first edition being here reprinted as one — and in the addition of an "Introduction to the Edition of 1902." No change is made in the body of the text, but the discussion brought up to date (December, 1901), by the Introduction. "During the four years which have elapsed since its publication, the trade union world has not appreciably changed in structure or function." The record for these later years (given in a similar introduction to the 1902 edition of the author's *History of Trade Unionism*) shows that the notable changes have been a large increase in membership and in funds. This increase has come, chiefly, to trades which were already in a strong position ten years ago, while the trades previously organized but in a slight degree, and trades comprising low-grade workmen have gained relatively little; while in some trades, as the clothing trades, the agricultural laborers, and the dockers, the unions have even lost ground. The total membership of British trade unions now probably exceeds two millions (1,905,116 in 1900, as against 1,502,358

in 1892.) The number of strikes, as well as the aggregate number of workmen affected by strikes, have, on the whole, also fallen off during the same period.

The greatest change recorded in the position of the unions is that effected by a series of decisions of the judges, particularly that of the House of Lords (July, 1901) imposing corporate liability upon the unions for the acts of their agents. As a result of these decisions, the unions are now in a notably more precarious position before the law than they have been during the past quarter of a century.